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CH-47C/HLH R AND M SIMULATION ANALYSIS

J. J. Dougherty, III

Boeing Vertol Company

Prepared for:

Army Air Mobility Research and Development Laboratory

July 1974

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The conclusions and recommendations contained herein are concurred in by this directorate. The comparative analysis contained in this report can be easily replicated or modified for application to other problem areas. The R&M simulation model used, however, is a complex tool that requires substantial skill in application and analysis of results.

The technical monitor of this contract was Mr. Robert L. Walker, Military Operations Technology Division.

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The steps taken to perform an analytical validation of the two models (CH-47C and HLH) are demonstrated.

Documentation and rationale are presented for modifications made, under this study, to an original Government-furnished R&M simulation model.

The results of this study are validated R&M simulation models for the CH-47C and HLH and a comparative analysis of the simulated ability of the CH-47C and HLH to perform various missions under several diverse maintenance support plans.

PREFACE

This report presents a study to develop valid CH-47C and "LH R&M simulation models, conducted under Contract DAAJ02-73-C-0031, Project IF162203A119, for the Eustis Directorate, U.S. Army Air Mobility Research and Development Laboratory (USAAMRDL), Fort Eustis, Virginia.

USAAMRDL technical direction was provided by Mr. R. Walker and Mr. H. Bratt.

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INTRODUCTION

Assessment of potential Reliability and Maintainability (R&M) hardware component research efforts requires an evaluation of the benefit of the proposed effort. Application of an Armydeveloped R&M simulation model to a specific helicopter type can provide a realistic, timely assessment of research potential. The approach consists of changing the "component R&M definitions" or maintenance concepts to reflect the desired changes, processing the resultant configuration through the R&M model, and then performing comparative analysis of the results.

One of the primary reasons for developing a simulation model is to evaluate operational relationships that are impractical or impossible to analytically investigate. Many of the problems which the model is used to solve are related to the availability/utilization function. The impact that variations in utilization have upon availability, personnel, spares, and support equipment usage can best be analyzed by means of simulation.

Personnel allocations, probability of spares availability, failure rates, and maintainability rates are entered as input to the model. Operating under the strictures defined by a prearranged mission schedule and maintenance philosophy, the model—by implementation of a Monte Carlo selection routine—selects certain tasks to be performed to simulate the repair of randomly occurring failures. Thus, by simulating the maintenance occurring over any given time frame, the model gives its user the ability to analyze his resource allocations. A flow diagram (Figure 1) presents an overview of how the operational and maintenance environment is simulated for a company of aircraft.

To provide a means of R&M assessment, Boeing Vertol has developed and documented in this study valid R&M simulations of the CH-47C and the developmental Heavy Lift Helicopter (HLH). Applicable R&M data was analyzed and transformed into probabilistic statements for input into the Government-furnished R&M simulation model. Alternative inspection schemes were developed and simulated and the results evaluated in terms of operational and logistics support impact. This scheme was accomplished by performing the tasks described in the flow chart in Figure 2.

The result of this study provides CH-47C and HLH models through which scheduled operations and available maintenance resources can be used to determine their effect on equipment availability and maintenance resource usage rate. Various relationships such as the availability/utilization relation

may be investigated and optimized in compliance with the constraints inflicted by the resources available and mission designated.

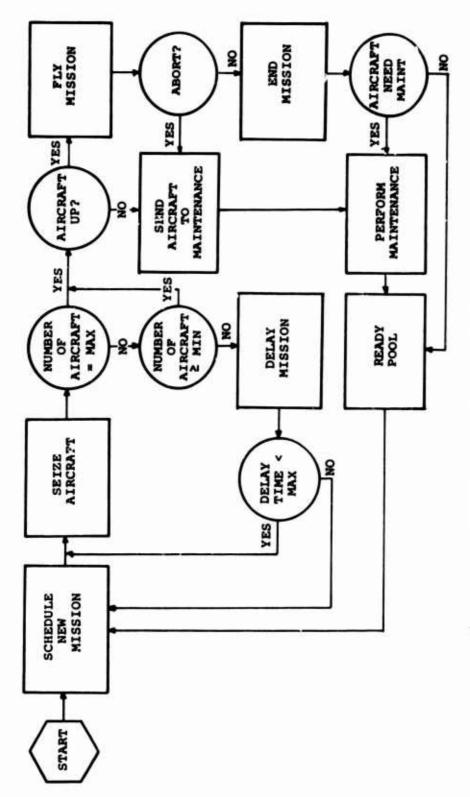


Figure 1. General Helicopter R&M Simulation Flow.

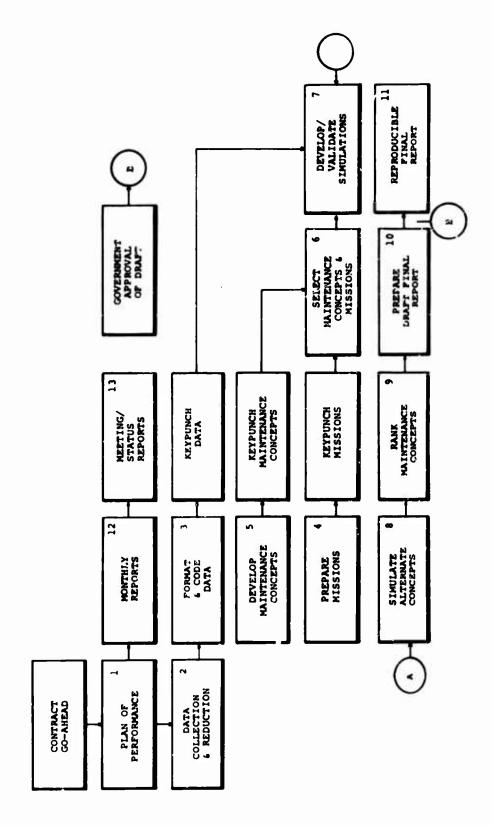


Figure 2. Frogram Flow Diagram.

BASELINE MODEL DEVELOPMENT

INTRODUCTION

It was the intent of this study to develop validated simulation models for the CH-47C and HLH and employ these models in a maintenance concept comparative analysis to demonstrate model capability for analytical application.

As such, the baseline models have been defined in a sufficiently general manner to allow for the comparative analysis with no logical modifications to the model. Rather, the mission concept and maintenance parameters, unique to the baseline models, are all defined by input data cards.

CH-47C - BASELINE MODEL DEFINITION

The probabilistic and deterministic R&M function tables have been defined for the baseline CH-47C model by direct application of historical data. It is felt that, although this data is a composite generated by aircraft flying rather diverse missions, the distribution of missions flown had a tendency to be centrally located around the baseline mission. Furthermore, the maintenance concept employed in support of the aircraft which generated this data base was, with only minor exceptions, identical to the baseline maintenance concept defined for use in the simulation model. Thus, the baseline model is considered an accurate representation of the actual O&M concept employed on the CH-47C.

CH-47C BASELINE MISSION

The baseline CH-47C mission is a composite developed over hundreds of thousands of flight hours of Chinook application in CONUS, Europe, and Southeast Asia. The expected CH-47C monthly utilization derived from the data generated by this experience is approximately 54 hours per aircraft per month. Furthermore, this data shows an expected Chinook mission length of 1.5 flight hours per mission.

The standard CH-47C company consists of 16 aircraft. For the baseline mission, a delay of up to 30 minutes is acceptable before a mission is scrubbed. Another baseline flight consideration is the requirement that a standby aircraft be maintained in a ready status at all times during the scheduled flying intervals.

Table I is the first page of output from the CH-47C simulation model. It defines the O&M scenario being simulated. Contained in this table are the precise times and number of aircraft relevant to each launch for the baseline mission.

CH-47C Baseline Maintenance Concept

The nucleus of the CH-47C maintenance concept is the 100-hour FMP. Almost half of all unscheduled maintenance and essentially all scheduled maintenance occur at this inspection. Reference can be made to the subsequent section of this report dealing with R&M Input Data to identify the quantitative basis for this qualitative statement.

The other essential elements of the CH-47C maintenance concept are the 25-hour PMI and daily inspection. When taken in conjunction with the PMP, these inspections account for the detection and correction of almost all unscheduled CH-47C maintenance requirements. The only--and rather obvious-exceptions to this statement are those failures detected during flight. Those failures, causing downing, but not aborts, are repaired immediately upon mission completion. This is contingent, of course, upon the availability of the necessary maintenance resources.

Table I provides a narrative, established by the simulation model, of the maintenance concept being simulated. The parametric values relevant to the CH-47C baseline maintenance concept are contained in Table II.

The manner in which the parametric entities of the baseline maintenance concept and mission are input to the model is identified in the input data cards displayed in Table III.

TABLE I. CH-47C R&M SIMULATION MODEL SCENARIO-BASELINE

Scenario Simulated

One platoon of 16 Army helicopters.

Flying program consisted of 7 flying days per week, with each simulation interval covering an 8-week period.

Mission duration is 1.5 hours with a utilization of 108 hours per aircraft for the 9-week period.

Launch schedule during each flying day

0700	3 aircraft	0830	3 aircraft
1000	3 aircraft	1130	3 aircraft
1300	3 aircraft	1430	3 aircraft
1600	3 aircraft	1730	3 aircraft
1900	3 aircraft		

Other Flight Considerations

Standby aircraft ready at all times during the scheduled flying intervals.

Mission flight is possible up to 30 minutes after scheduled flight time. After this interval, flight is scrubbed.

Maintenance Concept Simulated

Periodic maintenance inspections (PMP) occur at intervals of 100 hours.

Preventive maintenance daily (PMD) inspections occur daily if the aircraft has flown or every 72 hours if not flying Maintenance personnel are available between 0600 and 2200

during the 7-day flying period per week.

The aircraft consists of 293 elements. There are 16 time change components within this total.

An intermediate inspection (PMI) is performed every 25 flight hours.

Organizational maintenance includes an integrated direct support maintenance capability.

Off equipment component maintenance is performed at the depot level.

Condemnation or NRTS status is a dummy evaluation.

Basic CH-47C mission and maintenance philosophy.

TABLE II. BASELINE CH-47 MODEL PARAMETERS

- 16 aircraft per platoon
- 100-hour PMP, requiring 6 men for 7.5 hours each
- 25-hour PMI, requiring 3.5 men for 3.4 hours each
- Daily inspection performed @ 1830 each day requiring 2 men for 2.4 hours each
- TBO values ranging from 300 hours to 2400 hours
- Utilization of 54 hours per aircraft per month
- Maintenance action rate of 1.3 per flight hour
- Flying and maintenance take place 7 days a week
- 2 maintenance shifts of 8 hours each used daily

TABLE III. BASELINE CH-47C MODEL INPUT CARDS

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	INTITAL	445(27,131,0936	TRO TYPHOSLEMENT # 13	011515
	THITTA	445(27,147,0740	TBO TYEM-ELEMENT W 10	011416
	INTTTAL	445(27,15),1127	THO TTEVELEVENT # 19	111117
	THITTAL	445727,167,1131	two trinnifferent o 14	121518
	THITTAL	*46(27,17),1130	TAT TTERELEMENT # 17- DIMMY	011419
	THITTAL	¥45(>7,18),1154	TAD ITENSELEMENT # 14- DUMMY	911420
	THTTTAL	441(4,17),1443)	JAATIN JE ELYING INTERVAL	221521
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	THTTTAL	483(8.3).40 54	TET TERMASONTAGE ON THE # 2 19FF	111423
	THITTAL	443(4,0),50	SHIFT # > JERGET	011424
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	INTTIAL	445(24,17.5	REMOVED ELEMENT DIRPLARCOND., 680VH)	011524
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	INTTIA	445724,5).6	PEAJAED STEASAL SISALECTAD PROAM	011533
	INTTIAL	445(25,5),6	254JAEJ 4 EASAL DISS. 482JAD 487AH)	111430
	INTTO	445(29,7).6		011435
		446(29,51,6	REMINED TESTENT DISPLANCE (177.68 (MV)	011555
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	INTTIAL	445(24,9),5	9E43VI) [EMINT) [9P(40C7ND , 602V4)	001537
	INTTIA	449(34,101,5	(MACES "GALOEBJEEL LAINES" (MACES")	011539
	THITTAL	145(24,11),5	שבאטאבט בובמבאן בנופארמים ביים * • • • • • • • • • • • • • • • • • •	011530
	TATTTAL	445(24,12),5	BEAJAES : FEALAL S145(4*CJAS*** 9*3AH)	011441
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	INTTIA.	445(24,14),4	SEADALD SFEASAL DISSINSCIANO" (PRDAM)	011485
	INTTAL	445124,151,4	4640AEJ 1764EAL 3144(48CJAD**9#3AH)	011543
	INTTIAL	145[34,16],5	SEAJALS IFEAELL SIZBIROCAND" PERAM)	011544
	INTTIAL	445(25,17),6	AEAJAE) EFEAEAL SIABLUSCUAD. PROAM)	031485
	TNITTA	444(24,18),4	SEAUALD IFEALAL DISELBECTAD**##DAM)	011546
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HLH - Baseline Model Definition

All R&M input parameters employed in the definition of the HLH model have been developed extraneous to this study by Boeing Vertol Reliability and Maintainability Engineering Analyses. In all these analyses, the baseline mission and maintenance concept were held constant (and identical to those subsequently employed in the simulation model development). Described by prudent synthesis of analytical evaluation and engineering judgement, the baseline HLH model is the most accurate representation of the realistic application of the aircraft available.

HLH Baseline Mission

It is anticipated that a standard HLH company will contain 9 aircraft. These aircraft will each fly approximately 50 hours per month, primarily composed of 2.0-hour missions.

Again, as was the case for the CH-47C baseline model, a standby aircraft is required at all times during scheduled flying operations.

Table IV, the first page of output of the HLH simulation model, defines the unique call times and numbers of aircraft per launch for the baseline HLH model.

HLH Baseline Maintenance Concept

The HLH maintenance concept is centered upon a 600-hour, periodic inspection divided into 12 autonomous, 50-hour phases. In reality, each of these phases, with only minor overlap for inspecting safety of flight items, will inspect distinct sections of the sircraft. The aircraft has been partitioned (with respect to maintenance) into 12 segments, each of which requires approximately the same amount of look-phase inspection time.

Theoretically, the components located in the aircraft partition being inspected during any phase of the PMP should have a higher probability of maintenance than those not being inspected. However, due to a practical limitation of the model, this area has been intentionally biased. That is, at each inspection phase, the same relative probability of detection distribution has been employed. It is felt, however, that this bias is minimal, considering the number of PMP's being performed per simulation and the size of the random variation in detected elements generated by each simulation run.

TABLE IV. HLH BASELINE MAINTENANCE CONCEPT

Scenario Simulated

One platoon of nine Army helicopters

Flying program consisted of 7 flying days per week, with each simulation interval covering an 8-week period.

Mission duration is 2.0 hours with a utilization of 100 mission flying hours per aircraft for the 8-week period.

0700	2 Aircraft
1000	1 aircraft
1300	3 aircraft
1400	l aircraft
1900	2 aircraft

Other Flight Considerations

Standby aircraft ready at all times during the scheduled flying intervals.

Mission flight is possible up to 30 minutes after scheduled flight time. After this interval, flight is scrubbed.

Maintenance Concept Simulated

Phased periodic maintenance inspections occur at twelve intervals of 50 hours.

Preventive maintenance periodic (PMP) inspection is completed at 600-hour intervals.

FIRM inspections occur daily if the aircraft has flown or every 72 hours if not flying.

Maintenance personnel are available between 0600 and 2200 during the 7-day flying period per week.

The aircraft consists of 182 elements. There are no time change components within this total.

A 10-hour inspection is performed every 10 flight hours Organizational maintenance includes an integrated direct support maintenance capability.

Off equipment component maintenance is performed at the depot level.

Condemnation or NRTS status is a dummy.

Evaluation

Basic HLH mission and maintenance philosophy.

The other elements of the HLH maintenance concept are a 10-hour inspection and a firm (daily) inspection.

Table V identifies the parametric values employed in the baseline HLH maintenance concept.

Figure 3 shows the logical interaction of the elements of the baseline HLH model, and quantifies some of the significant O&M parameters.

Evaluation of Government Furnished R&M Simulation Model

The Government-furnished R&M simulation model provided Boeing Vertol to use in this analysis was defined upon a UH-IN aircraft and Army operational procedures. The model is written in GPSS and requires approximately 300,000 bytes of CPU core, and 5 minutes of CPU time to execute. Originally, the model was logically too tight for general application. That is, the model was so dependent upon the R&M characteristics and mission scenario of the UH-1 helicopter, that it required significant modification in order that it could be applied in the manner required. The critical areas requiring modification were, (1) generalization of mission length application, (2) generalization of PMP/PMI decision, (3) activation of NORS logic, (4) accountability of NORS downtime, (5) expansion of PMI logic, and (6) an increase in the number of aircraft/company the model can accommodate.

Forty-three blocks of logic were added to the original twelve hundred and forty blocks. Twenty blocks of logic were modified. Approximately three hundred cards were added to the output editor. Several new variables were defined. Approximately three hundred savevalues were modified. The one hundred seventy three variable statements were labeled and the initial cards used in the CH-47 and HLH models were labeled.

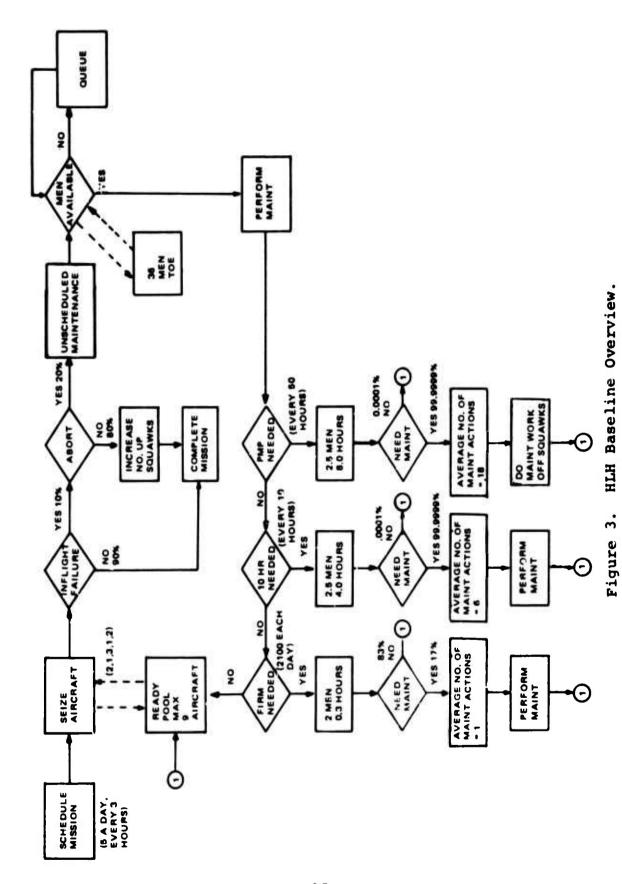
It is felt that these generalizations to the model enabled Boeing Vertol to accomplish the contractually required comparative analyses in a more timely manner than would have been possible employing the original model without modification.

Appendix VI presents a detailed identification of the modifications made to the original Government-furnished R&M simulation model. These changes, taken in conjunction with the documentation of the original UH-1 model in Army Technical

Report 73-75, constitute the total documentation package for the CH-47C and HLH baseline R&M simulation model.

TABLE V. BASELINE HLH MODEL PARAMETERS

- 9 aircraft per platoon
- 50-hour phased PMP, requiring 2.5 men for 8.0 hours
- 10-hour inspection, requiring 2.5 men for 4.0 hours
- Firm inspection performed at 2100 each day requiring 2 men for 0.3 hour each
- All components operate on-condition
- Utilization of 50 hours per aircraft per month
- Basic mission length of 2.0 flight hours
- Maintenance action rate of 1.05 per flight hour
- Flying and maintenance take place 7 days a week
- 2 maintenance shifts of 8 hours each are used each day



R&M INPUT DATA

INTRODUCTION

In order that the data collection and analysis task would not dominate the total engineering effort, this study was intended to make maximum use of available CH-47C and HLH R&M data. All basic R&M data elements such as maintenance action rates, mean times to repair, and crew sizes have been extracted from Vertol-developed and -maintained data banks. It has been assumed that all R&M data elements, extracted from the data banks and transformed into a format compatible with the model requirements, are quantitatively and qualitatively valid.

DATA SOURCES

CH-47C

R&M data inputs for the CH-47C have been extracted from the Boeing-Vertol CH-47C/Lll Reliability and Maintainability Field Experience Summary, based on 4132.2 flight hours at the U.S. Army Aviation Test Board, Fort Rucker, Alabama, between June 1969 and September 1970.

HLH

R&M input data for the HLH have been extracted from Boeing-Vertol Document D301-10004-1, HLH Preliminary Design Objectives for the subsystems not covered by the HLH Advanced Technology Components (ATC) contract. For the subsystems covered by the HLH ATC contract, the R&M input data have been extracted from the individual, elemental Maintenance Engineering Analyses (MEA's) performed by Boeing-Vertol maintainability engineering under the HLH ATC contract.

CH-47C R&M DATA

The basic R&M data used to develop the majority of functional and probabilistic inputs to the CH-47C model are contained in Appendix IV. It is felt that these data elements and their relationship to the model function table requirements are straightforward, not requiring any detailed discussion. This section discusses those input data elements which were developed analytically or through engineering judgement and, as such, warrant greater consideration. The function tables falling into this category are functions 2, 10, 12, 14, and 55.

Function 2 - The event probabilities of success coded in this table are based upon an analysis of the previously mentioned CH-47/Lll R&M field experience summary.

This evaluation showed that for the PMI and PMP inspections, there was virtually no probability of successfully performing the ground event; therefore, for the PMI and PMP events, numbers 8 and 17, respectively, in function Table 2, a value of .000001 has been coded.

This data analysis showed that, essentially, all daily inspections resulted in unscheduled maintenance actions. However, the data showed that the mean time between daily inspections is 6.7 flight hours. Further analysis shows the average utilization per aircraft per day is 3.5 hours. Thus the average number of days between dailies based on historical data for the CH-47C is estimated as 1.9 days. The model, as presently constructed, generally distributes use uniformly over each aircraft per company, rather than using one aircraft per day, which is, according to current CH-47C data, presently being employed. Therefore, a probability of detection of 1/1.9 has been employed as the best estimate of daily inspection probability of failure. Thus for the daily inspection events, number 16 in function Table 2, a value of .500000 has been coded.

Function 10 - This function table contains the <u>cumulative distribution</u> function (CDF) for the <u>number of maintenance actions</u> detected in flight, given that at least one maintenance action has been detected in flight.

Quantitative data is not available for defining a table of this type; thus the distribution has been defined based on engineering judgement. The expected number of maintenance actions detected in flight, conditional upon the detection of at least one maintenance action is, 1.1 maintenance action for the mission length of 1.5 hours.

Function 12 - This function table contains the CDF for the occurrence of multiple maintenance actions at the daily inspection. In 615 daily inspections contained in the CH-47C data base, a total of 1913 maintenance actions were detected. This yields an expected number of maintenance actions of 3.1 per inspection. The manner in which these maintenance actions were distributed for the simulation analysis is shown in Figure 4.

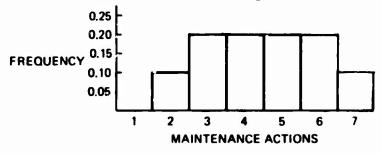


Figure 4. CH-47C Daily Maintenance Action Distribution.

Function 14 - Contained in this table is the <u>cumulative distribution function</u> for the number of maintenance actions detected at a PMP, given that at least one maintenance action has been detected at the PMP. An analysis of 41 PMP's contained in the CH-47C data base identified 2767 maintenance actions; thus the expected number of maintenance actions per failed PMP is 67.5. The values contained in this table have been derived by assuming that the distribution underlying the number of maintenance actions per failed PMP is the normal distribution with mean \overline{X} equal to 67.5 and standard deviation S equal to $\overline{X}/6$ or 11.3.

Function 56 - This table contains the cumulative distribution function for the number of maintenance actions at a PMI, given that at least one maintenance action has been detected at the PMI. An expected number of maintenance actions per PMI of 6.7 has been estimated, based upon the 167 PMI's contained in the data and their resultant 1127 maintenance actions. Again, as in the case of the PMP a normal distribution with mean (\vec{X}) equal to 6.7 and standard deviation (S) equal to $\vec{X}/6$ or 1.1 is employed.

HLH R&M Data

Appendix V contains the basic R&M data inputs employed to develop the HLH model. As was the case for the CH-47C, the transition from predicted R&M data into function tables is basically straightforward enough to require no further discussion. However, the development of tables 2, 10, 12, 14, and 55 for the HLH, where no data was available, required definition and implementation of a mathematical model for estimating functional data elements.

A brief derivation of a math model which can be used for this purpose follows. The fundamental assumption of this model is that the number of maintenance actions detected at any inspection is positively correlated to the amount of time spent in look-phase maintenance at that event.

Assume that three inspections exist at which maintenance can be detected for a certain aircraft.

Further assume that for each of these three inspections, a known time between occurrence (f_i) , crew size (C_i) , and EMT (EMT_i) exists.

Now, establish an interval of arbitrary length (L), such that each inspection can be expected to occur an integral number of times.

Then, the expected number of maintenance actions per each occurrence of inspection i can be estimated as

$$\begin{pmatrix} & \text{# MA'S} \\ \text{@ inspection} \end{pmatrix}_{i} = \frac{(C_{i}) (EMT_{i})}{\sum_{j=1}^{3} \frac{(C_{j}) (EMT_{j})}{(f_{i})} (MTBMA)}$$

It is recommended that the previous equation be modified for most applications to include a deferral factor (d_i) . Thus, the equation becomes

$$\begin{pmatrix} \# MA'S \\ @ inspection \end{pmatrix}_{i} = \frac{(C_{i}) (EMT_{i}) (d_{i})}{\sum_{J=1}^{3} (d_{j}) (C_{j}) (EMT_{j})} (MTBMA)$$

where the $\mathbf{d_i}$ values are chosen in such a manner that the MTBMA is held constant over interval L.

Now, assume that the number of maintenance actions at inspection i is Poisson distributed with mean equal to the

One can now use a Poisson table to calculate the probability of exactly 0, 1, 2, 3, . . . , N, . . . , ∞ maintenance action, simultaneously occurring at inspection i.

The probability associated with 0 maintenance actions is one input required by the model - viz - event probability of success, contained in function 2.

In order to calculate the conditional distribution of maintenance actions per failed event, merely divide the probabilities associated with each number of maintenance actions by (1-event P (success)).

Do this for each of the i inspections. Thus, both types of probabilistic functions required by the model are developed.

To emphasize this technique, consider its application to the HLH, where the following data has been employed.

Event No.	Event Name	Time Between Occurrences	Crew Size	EMT	Deferral Factor
1	firm	2 hours	2	0.3	0.5
2	10-hour	10 hours	2.5	4.0	0.5
3	phased PMP	50 hours	2.5	8.0	1.0

This data, when taken with the total aircraft MTBMA (Mean Time Between Maintenance Actions) of 0.95 hour is then used in the math model, yielding the following results.

Event No. (i) Event Name No. Maintenance Actions i/Cycle

1	firm	7.5
2	10-hour	24
3	phased PMP	20

Thus, using the frequency of occurrence of the i inspections and a subjective estimate of the probability of detecting maintenance at each of the i inspections, the following data has been developed for input to the probabilistic function tables.

Event No.(i)	Event Name	L/ fi	No. Maintenance Actions _i @ Inspection _i	Subjective Probability of Maintenance
1	firm	25	1.0	0.3
2	10-hour	4 *	6.0	0.999999
3	phased PMP	1	20.0	0.999999

This data is then used to define function tables 2, 12, 14, and 55. Again (as was the case for the CH-47C) the assumption has been made for the PMI and PMP inspections that the number of maintenance actions detected per inspection is normally distributed with mean, \overline{X} , equal to the expected number of maintenance actions per inspection, and standard deviation, S, equal to $\overline{X}/6$.

For the daily and inflight conditional expected number of maintenance actions, function tables 10 and 12 respectively, a truncated Poisson distribution has been subjectively defined. The frequency distributions employed in constructing function tables 10, 12, 14 and 55 are shown in Figures 5 through 8.

Coding of the data presented in the succeeding plots in the format required by the function tables is demonstrated in Appendix VI.

^{*}A PMI is not performed concurrently with the PMP, thus only 4 PMI's per cycle (not 5 as would be calculated using the formula) will take place.

90% of HLH inflight maintenance occurrences result in 1 maintenance action. 10% result in 2 maintenance actions



Figure 5. HLH Inflight Maintenance Action Distribution.

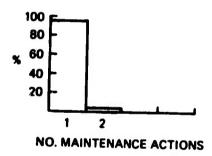


Figure 6. HLH Firm Maintenance Action Distribution.

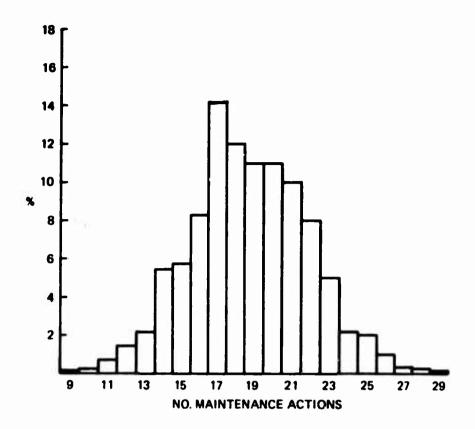


Figure 7. HLH PMP Maintenance Action Distribution.

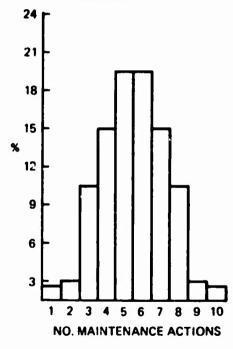


Figure 8. HLH 10-Hour Maintenance Action Distribution.

ALTERNATE MISSION AND MAINTENANCE CONCEPTS

This section identifies the several missions and maintenance concepts defined for the CH-47C and HLH as candidates for simulation in the R&M model. This will demonstrate the suitability of the model for application to typical maintenance analysis.

All missions defined are considered by the airframe manufacturer to be feasible applications of the aircraft being simulated.

All simulated maintenance concepts are based on realistic maintenance applications. As such, the alternate maintenance concepts and missions defined in this section represent a cross section of Operations and Maintenance (O&M) scenarios in which the aircraft could be utilized and maintained.

ALTERNATE MISSION CONCEPTS

CH-47C Missions

The four CH-47C simulated missions shown in Table VI are representative of the aircraft's uses. The following discussion will briefly define each of these four scenarios.

Combat Support (Basic Mission) - This mission is based on Chinook experience in the Republic of Vietnam. An average of 56 hours per aircraft per month is used. Sixteen aircraft are located in one spot. Scheduled missions require 3 aircraft for 1.5 hours per mission, and a standby aircraft is constantly kept ready during the scheduled flying periods.

Logistic Support (Alternate Mission 1) - This mission has been defined to be representative of Chinook application in a sustained surge mission, typical of a relatively high intensity conflict. A full company of sixteen CH-47C aircraft are located and deployed from one location in a resupply mission, generally requiring seven aircraft per mission for 1.5 hours per aircraft.

CONUS Minimum (Alternate Mission 2) - Several peacetime applications of the CH-47C have been combined into a composite CONUS mission. Eleven aircraft are deployed at one location where they perform functions varying from training missions to cargo handling. Each mission duration is 1.5 hours, with one aircraft required per mission.

Fort Rucker Lead-the-Fleet Program (Alternate Mission 3) - In order to provide Time Between Overhaul (TBO) extension data on CH-47C dynamic components, several Chinooks (usually three)

TABLE VI. CH-47C SIMULATED MISSIONS

Combat Support

(Basic Mission)

Utilization = 56 hours/month/aircraft
2 hours/day/aircraft, 7 days a week

Sixteen aircraft at a location

One standby aircraft is required

Logistic Support

(Alternate Mission 1)

Utilization - 168 hours/month/aircraft
6 hours/day/aircraft, 7 days a week

Sixteen aircraft at a location

Mission length is 1.5 hours and requires 7 aircraft
No standby required

CONUS Minimum

(Alternate Mission 2)

Utilization - 30 hours/month/aircraft
1.5 hours/day/aircraft, 5 days a week

Eleven aircraft at a location

Mission length is 1.5 hours and requires 1 aircraft
No standby required

Fort Rucker

(Alternate Mission 3)

Utilization = 100 hours/month/aircraft
5.0 hours/day/aircraft, 5 days a week

Three aircraft at location

Mission length is 1.5 hours and requires 1 aircraft
No standby required

have been located at the U.S. Army Aviation Test Board facility at Fort Rucker, Alabama, since 1963. These aircraft have been generally flown more than the rest of the CH-47 fleet.

For this analysis, 100 hours per aircraft per month has been employed. Each mission requires 1.5 hours with one aircraft required per mission. Flights occur 5 days a week rather than 7 days a week, as is the case for all other missions defined herein for the CH-47C.

HLH Missions

The HLH missions shown in Table VII represent four of the possible missions in which a Heavy Lift Helicopter could be employed. The following discussion will identify the pertinent operational characteristics of these areas.

HLH Combat Support Mission

This is the baseline mission for the Heavy Lift Helicopter. Nine aircraft are located in one spot and a utilization of 50 hours per aircraft per month is anticipated. Flying takes place over a 7-day week. Each mission requires between 1 and 3 aircraft and is assumed to take 2 hours. A standby aircraft, required at all times, is kept in an alert status during scheduled flying periods.

HLH Container Unloading

Three Heavy Lift Helicopters are deployed from a single spot (possibly a harbor) where they perform a container unloading mission. Due to the large amounts of cargo to be moved, missions of this type could be expected to place a high utilization requirement on the aircraft. For this analysis, a utilization of 150 hours per aircraft per month has been employed. Each 2-hour mission requires one aircraft and flying occurs 5 days a week.

HLH CONUS Mission

This mission is a composite of several of the CONUS missions in which a Heavy Lift could be employed, ranging from cargo handling to training missions. Nine aircraft will be deployed from one location. Missions, generally requiring three aircraft and taking 2 hours, will take place on a 5-day week basis.

TABLE VII. HLH SIMULATED MISSION PROFILES

HLH Combat Support Mission

(Basic Mission)

Utilization = 50 hours/month/aircraft
1.8 hour/day, 7 days a week

Nine aircraft at a location

One standby aircraft is required

HLH Container Unloading

(Alternate Mission 1)

Utilization = 150 hours/month/aircraft
7.5 hours/day, 5 days a week

Three aircraft at a location

Each mission is 2 hours long and requires only 1 aircraft

No standby required

HLH CONUS Minimum

(Alternate Mission 2)

Utilization = 20 hours/month/aircraft
l hour/day, 5 days a week

Nine aircraft at a location

Each mission is 2 hours long and requires 3 aircraft

No standby aircraft required

HLH Combat Support Surge Mission

(Alternate Mission 3)

Utilization - 280 hours/month/aircraft
10 hours/day, 7 days a week

Nine aircraft at a location

Each mission is 5 hours long and requires 3 aircraft

A standby aircraft is required

HLH Combat Support Surge Mission

One of the more important operational requirements of the Heavy Lift Helicopter is that it can sustain a 300-hour per aircraft per month surge over a 60-day period. This mission would typify a high-intensity conflict where 9 aircraft, located at one spot, will be flying essentially every minute that they are available for flight, 7 days a week. It has been assumed for this analysis that each mission requires 3 aircraft and will take 5 hours. Due to the importance of this mission and the realization that contingencies could arise requiring that an additional aircraft be displaced to some other location, a standby aircraft is required.

ALTERNATE MAINTENANCE CONCEPTS

CH-47C Maintenance Concepts

7

Five maintenance concepts have been developed for the CH-47C, consisting of the baseline existing CH-47C maintenance concept and four alternative maintenance concepts. The four variations from the original or baseline concept represent significantly different philosophies of scheduled inspection and scheduled maintenance, varying from levels of TBO's for dynamic components to the elimination of all TBO's from the aircraft, that is, operating the aircraft on condition. The following discussion will briefly define each of these five maintenance concepts.

For all runs of the CH-47C comparative analysis, the same Table of Organization and Equipment (TOE Number 1-258H) has been employed. The personnel allocated within this TOE has been aggregated into 7 categories of personnel types for use in the simulation analysis. The quantities of personnel for each of these 7 categories, and the corresponding Army Military Occupation Specification (MOS) designations, are shown below. Two shifts of 8 hours each were used for all runs.

Skill Code	MOS Number	MOS Nomenclature	Shift 1 Quantity	Shift 2 Quantity
01	67UXX	Helicopter Repairman	20	10
02	68GXX	Airframe Repairman	12	6
03	35KX):	Avionics Repairman	3	2

Skill Code	MOS Number	MOS Nomenclature	Shift 1 Quantity	Shift 2 Quantity
04	35LXX	Avionics Repairman	2	0
05	68FXX	Electrical Repairman	4	2
06	68нхх	Hydraulics Repairman	2	0
07	68EXX	Rotor Repairman	2	O

CH-47C Existing Maintenance Concept

Table VIII identifies scheduled maintenance requirements, inspection requirements, and mission information data on the baseline CH-47C mission. It can be seen from this table that TBO levels vary from 300 hours on the engine to 2400 hours on certain elements of the shaft assembly. The inspection concept calls for the performance of the daily inspection after the last flight of the day or preceding the first flight of the next day, an intermediate inspection performed in 25-hour increments, and a periodic inspection performed every 100 hours. Freflight and postflight inspections are not performed by the maintenance crew and are therefore not chargeable to maintenance. These inspections are merely walkaround safety-of-flight inspections performed by the pilot, copilot, or crew chief before and after flight.

CH-47C Maintenance Concept - Alternate A

This simulated maintenance concept shown in Table IX is based upon the presently considered baseline mission and maintenance concept for the Heavy Lift Helicopter. The scheduled maintenance concept for the aircraft requires all components to be operated on condition. The inspection concept requires: a firm inspection which can be considered analogous to the daily inspections of the CH-47C baseline mission except in terms of duration and content of those things inspected; (2) a 10-hour inspection performed in conjunction with the firm inspection which covers those areas previously considered performed in the daily inspection; and (3), the Phased Periodic Inspection (PPI) which is performed every 50 hours. In performing the various phases of the periodic inspection, the aircraft is divided into six independent areas, all of which require essentially the same elapsed maintenance look-phase time. After six sequential phases of inspection, the total periodic maintenance inspection has been completed. Due to some

	TABLE VIII.		-47C MAINTENANCE CONCEPT (BA	BASIC CH-47C MAINTENANCE CONCEPT (BASED ON EXISTING MAINTENANCE POLICY)	POLICY)
ż	Scheduled Maintenance	ů.	F.N	Retirement TBO Interval	ent sal
	Forward transmission Aft transmission Engine combining transmission Affine mechanical transmission (2) Affine shaft assembly Sync shaft adepter Sync shaft adepter Sync shaft adepter Forward rotery wing head Aft rotery wing head Forward swashplate assembly Aft washplate assembly Aft rotery wing head Forward rotery wing head Aft rotery wing head Forward roter blades (3) Aft roter blades (3)	smission sion ning transmission (2) ning drive shaft seembly dapter shaft assembly ty wing head hplate assembly te assembly tr blades (3)	114D1200-5 114D2200-7 114D5200-2 114D5200-4 114D1200-4 114D1250-1 114D1267-3 114D1267-3 114R2004-4 114R3508-8 114R1508-8 114R1508-11, -12 114R1502-34	1200 1200 1200 1200 1200 1200 1200 1200	
i i	Inspections	Crew 6 Elapsed Time	When Accomplished	Description	Rationale
	(1) Daily	2.37 hours	After the last flight of thr day or preceding the next day's first flight	Consists of visual examination and operational checks to determine that the aircraft can safely and efficiently perform its assigned mission	Scheduled inspections are required in order to assure that latent defects are discovered and corrected before malfunctioning or seri- ous trouble results
	(2) Intermediate	3.5 men 3.44 hours	Every 25, 50, and 75 flying hours after com- pletion of the periodic inspection	Provides verification of satisfactory functioning at frequencies between the daily and periodic inspections	Same as daily
	(3) Periodic	6 men 7.55 hours	Every 100 flying hours	A comprehensive, thorough, and searching inspection of all items which are subject to adjustment, discrepancies, or failures	Same as daily

		TABLE IX.	CH-47C MAIN	TENANCE CONCEPT - AL	TABLE IX. CH-47C HAINTENANCE CONCEPT - ALTERNATE A (BASED ON PROPOSED HIM MAINTENANCE CONCEPT)	HAINTENANCE CONCEPT)
4		Scheduled Maintenance				
	Non	None - All components are	nts are replaced "on condition".	condition".		
•		Inspections				
		• <u>977</u>	Crew & Elapsed Time	When Accomplished	Description	Rationale
	ĉ	Flight inspection requirement minimum (firm)	2 men 12 min	After each flying day	Minimum safety of flight inspection which supplents present daily inspection Only items directly related to safety of flight are considered	Historical CH-47C DATA has shown that many of the items on the daily checklist rarely fail. This impection would cover only those things
	(3)	Ten-hour inspection	2.5 men 3.5 hours	Each 10 flight hours in conjunc- tion with the firm	Covers those areas previously included in the conventional daily inspection that are not classified as 'flight critical"	Reduced maintenance by ex- tending the inspection interval of non "flight critical" items
	ŝ	Phased Periodic Inspection (PPI)	2.5 men 7 hours for each phase	Progressive phases - every 50 flight hours	The PPI will be divided into 6 phases, each of which will be performed every 50 flight hours. A full inspection will be completed in 300 flight hours, at which time another cycle will be initiated	Improvements in impaction methods and reliability will reduce the need for look phase inspection and increase the interval between periodic inspections. This concept permits the aircraft to be removed from filling at time during astitute periods of time during astitute of filcient fillight schouling, improved personnel utilization and increased availability.
						completely eliminated.

limitations of the existing form of the R&M simulation model, the application of this maintenance concept is slightly biased; that is, at each phase of the PPI, it is assumed that every item of the aircraft is capable of being observed as a failure, rather than just those items that would be normally covered in that look-phase of the periodic inspection. It is felt, however, that due to the manner in which the six phases of the periodic inspection would be constructed, the bias injected by performing the analysis is minimal. Again, as in the case of the baseline mission, preflight inspections are not chargeable to maintenance.

CH-47C Maintenance Concept - Alternate B

This concept shown in Table X represents an adaptation of the Navy maintenance concept for supporting a CH-46 to an Army CH-47C maintenance concept. Scheduled maintenance of dynamic components consists of TBO levels varying from 1200 hours for transmissions to 2400 hours for the engine and certain elements of the sync-shaft assembly. The inspection concept consists of, (1) a turnaround inspection performed prior to each flight of the day and after the last flight of the day, which is essentially a combination of preflight and postflight inspections, (2) a daily inspection performed prior to the first flight of the day, and (3) a calendar periodic inspection performed at 34-week intervals. The interesting point of differentiation between this concept and the existing maintenance concept is that the periodic inspection is not aircraft-clock oriented, but rather calendar-time oriented. Incorporation of this maintenance concept into the comparative analyses, which will be discussed in detail later, required certain areas of modification to the model to enable evaluation of periodic inspection requirements based on the calendar rather than clocktime orientation.

CH-47C Maintenance Concept - Alternate C

This concept depicted in Table XI represents the adaptation of an Air Force H-3 maintenance concept to an Army CH-47C application. All components are to be replaced on condition; that is, there is no scheduled removal of dynamic components. The inspection concept consists of a preflight inspection, performed prior to each flight of the day, a postflight, performed after each flight of the day, and a phased periodic inspection, performed at 100 flying hour intervals. The major distinction between this alternate maintenance concept and the baseline and other alternate maintenance concepts is the replacement of the daily inspection with the postflight inspection performed after each flight, not just after the last flight of the day.

	TABL	TABLE X. CH-47C H	CH-47C HAINTENANCE CONCEPT - ALTERNATE B (BASED ON USN CH-46 NAINTENANCE CONCEPT)	TERIOTE B (BASK	ID ON USH CH-46 MAI	INTERNACE CONCEPT)
-č	Scheduled Maintenance Component		N/4	Off-	Retirement Interval	
	Forward transmission Aft transmission		114D1200-5 114D2200-7	1200	X X X	
	-	transmission	11405200-2	1200	4 / x	
	Engine mechanical transmiss	transmission	11406200-4	000	W/W	
	Sync shaft assembly		All Appl. P/N's	700	- N	
	Sync shaft adapter		114D3243-1	2400	N/A	
	Sync shart adapter	>14	11403047-3	7400	4/x	
	Forward rotary wing head	P	11482003-3	1200	N/N	
_	Aft rotary wing head		11482004-4	1200	X .	
	Mer accets avending assembly	k T Church	11483506-6	0071	Y/K	
				2 ×	009	
	Aft rotor blades		114R1502-34	N/N	0000	
	Engine		T-55-L-11	2400	N/N	
ė	Inspections		:			
		Crew 6	Wen Accomplished	90	Description	Bettonate

	(1) Turneround/ servicing	1 man 20 min	Prior to each flight and efter last flight	Primarily a visual inspector decreased and between flights, degrade that may have occurred flight and the required servicing	Primarily a visual inspection to determine obvious defects between flights, degradation that may have occurred during flight and the required servicing	Purpose of the turn- around imspection is to reduce downtime between flights. It contains the miniatum requirements to insure the integrity of the aircraft for flight
	(2) Daily	2 men 60 min	Prior to the first flight of the day	These requirements spect for latent appearer depth that in the turnstound	These requirements are to inspect for latent defects at a greater depth han performed in the turn/cound	Purpose is to determine degradation and to insure the aircraft is safe for flight
	(3) Calender-periodic (airframe)	9 men 13 hours	At 34-week intervals	A thorough an apection of coraft to inapectation U curred during essential prenance	A thorough and detailed inspection of the complete aircraft to inspect for material degradation that may have occurred during the preceding calendar period and to perform essential preventive maintenance	Calendar concept permits more efficient scheduling of aircraft operations and mainterance, thereby improving eircraft availability

		TABL	TABLE XI. CH-47C HAI	WENT	35 COME	ept - alternate c (Bas	CH-47C MAINTENANCE CONCEPT - ALTERNATE C (BASED ON USAF H-3 MAINTENANCE CONCEPT)
ď	Sch	Scheduled Maintenance:		nents	are rep	None - All components are replaced "on condition".	
ė	Inst	Inspections					
		al.	Crew 6		When A	When Accomplished	Description
	â	Preflight	2 men 30 min	Prior	Prior to each flight	flight	Inspection consists of checking the helicopter for flight preparedness by performing viewal examination and operational checks of certain components to assure no defects or malments to assure adjustments exist that could cause accidents or aborted missions
	3	(2) Postflight	2 men 20 min	After	After each flight	1gh c	Inspection consists of checking the halicopter to determine if it is suitable for another flight by performing visual examination of certain components, areas or systems to assure no defects exist which would be datalemental to further flight.
	ĉ	Phased inspection	3.5 hours	EVERY	001	Every 100 flving hours	The complete inspection cycle for the weapon system is assumed to be 120 hours. A portion of the total recurring inspection requirements is accomplished at each phased inspection. Certain items are considered basic phase requirements and will be accomplaished in conjunction with each phase (100 flying hours) inspection. The inspection of with phase number one, 100 hours after completion of the 12th phased inspection of the 12th
							Included in each phased inspection are requirements for checking certain components areas or systems of the helicopter to determine that no condition exists which, if not corrected, could result in failure or malfunction of the component prior to the next scheduled inspection

CH-47C Maintenance Concept - Alternate D

The final alternate CH-47C maintenance concept shown in Table XII is a modification of a Navy UHLE maintenance concept to an Army CH-47C application. TBO levels on dynamic components range from 2000 hours on the transmissions to 2400 hours on the engines. The inspection concept calls for a preflight inspection before each flight, a postflight after each flight, a daily inspection performed prior to the first flight of the day in conjunction with the preflight, and a calendar periodic inspection performed at 17-week intervals. This inspection concept, therefore, combines various elements of several of the previously defined maintenance concepts.

HLH MAINTENANCE CONCEPT

Each of the five maintenance concepts defined for the heavy-lift helicopter is basically similar to those previously discussed for the CH-47C helicopter. The variations between HLH maintenance concepts and those for the CH-47C are the look-phase maintenance time required to perform the various elemental inspections for the maintenance concepts. Tables XIII through XVII identify the scheduled inspection requirements for the various dynamic components of the HLH aircraft in the various maintenance concepts, and the duration and number of men required to perform the look-phase of the various inspection types. Therefore, rather than duplicate the previous discussion, Table XVIII has been developed to show the correlation between the CH-47C and HLH maintenance concepts. Table XVIII presents a method of utilizing these discussions and relating them to the maintenance concepts depicted in Tables XIII through XVII.

For all runs of the HLH comparative analysis, two 8-hour maintenance shifts have been employed. The personnel allocations for each shift, in terms of quantities and distribution, have been developed by Boeing Vertol Maintainability personnel. The specific personnel quantities by skill code employed in this analysis are shown below.

Skill Code	Comparable Army Maintenance Nomenclature	Shift l Quantity	Shift 2 Quantity
01	General Mechanic - Organizational	13	11
02	General Mechanic - Integrated Direct Support	6	ε

		TABLE XII.	T T	AINTENANCE CONCEPT - 1	ALTERNATE D (BASED ON U	CH-47C MAINTENANCE CONCEPT - ALTERNATE D (BASED ON USN UH-1E MAINTENANCE CONCEPT)
- i		Component translation component translation component and translation	ance ton transmission transmiss	1180 2000 2000 2000 2000 2000 2000 2000	Metirement Interval N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A	
i		Inspections Type (1) Preflight	Crew & Elapsed Time 2 min	When Accor	When Accomplished ch flight	Description This inspection is to verify proper servicing and to inspect for obvious
	ê	Postflight	2 men 20 min	After each flight		This inspection required to deter- mine obvious degradation that may have occurred during flight and re- quired servicing
<u>-</u>	ĉ	Delly	2 men 60 min	Prior to the first flight of the day. No more than 72 hours may elapse betwee such accomplishment and the following flight. The accomplishment of these requirements immediately prior to flight shall satisfy the requirements of a prifight inspection	Prior to the first flight of the day. No more than 72 hours may elapse between such accomplishment and the following flight. The accomplishment of these requirements immediately prior to flight shall satisfy the requirements of a preflight inspection	This inspection required to inspect for latent defects at a greater depth than performed in the preflight and postflight inspection; to determine degradation and to insure the aircraft is safe for flight
	3	Calendar periodic	9 men 10 hours	At 17-week intervals		These requirements are to inspect the aircraft for material degradation that may have occurred during the preceding calendar and to perform essential preventive maintenance

ZHANCZ CONCZET)		Rationale	Incorporation of diagnostics and improved reliability eliminates the conventional daily inspection	Reduce maintenance by extend- ing the inspection interval of non-flight critical items. Anticipated frequency would be every other flying day based on a utilization rate of 4 hours per day	Significant state-of-the-art attainments affecting reli- ability and inspection methods will reduce the need for look- phase inspection and will sub- stantially increase the interval between periods in spections. The advantages in this concept are that the air- craft is removed from flight status for shorter periods down- time during anticipated down- time periods, permitting efficient flight scheduling, im- proved personnel utilization and increased availability. Deferred maintenance accrual is attenuated, if not com- pletely eliminated
BASIC HIM MAINTENANCE CONCEPT (BASED ON PROPOSED HIM MAINTENANCE CONCEPT)	on condition".	Description	Minimum safety-of-flight inspection which sup- plants present daily inspection. Only items directly related to safety-of-flight are considered	Covers those areas pre- viously included in the conventional daily in- spection that are not classified as 'Ilight critical' for the HLH	The PPI will be divided into 12 phases, each of which will be performed every 50 flight hours. A full inspection cycle will be completed in 600 flight hours, at which time another cycle will be initiated
HIM MAINTENANCE CONCEPT (None - All components are replaced "on condition".	me When Accomplished	After each flying day	Each 10 flight hours in conjunction with the FIRM	Progressive phases every 50 flight hours
	None - All	Crew 6 Elapsed Time	2 men 15 min	2.5 men 4 hours	2.5 men bours for each phase
TABLE XIII.	Scheduled Maintenance:	Inspections Type	Flight Inspection Requirement Mini- mum (FIRM)	Ten-hour inspec-	Phased Periodic [PFI]
	A. Sch	B. In	a	(3)	ĉ

	Rationale Scheduled inspections are required in order to assure that latent defects are discovered and corrected before malfunctioning or serious trouble result Same as daily
	Description Consists of visual examination and operational checks to determine that the aircraft can safely and efficiently perform its assigned mission Provide verification of satisfactory functioning at frequencies between the daily and periodic inspections A comprehensive, thorough, and searching inspection of all items which are subject to adjustment, discrepancies, or failures
TBO 1200 1200 1200 1200 2400 2400 2400 2400	When Accomplished After the last flight of the day or preceding the next days flight Every 25, 50 and 75 flying hours after com- pletion of the periodic inspection Every 100 flying hours
Scheduled Maintenance Component Forward rotor transmission Combining transmission Aft rotor transmission Sync shafting (6 sections) Sync shafting (6 sections) Slaft shaft (2 sections) Engine drive shafts (6 sections) Forward rotor hub Aft rotor hub Aft rotor blades Forward swahplate Aft swashplate Engine	Elapsed Time (1) Daily 2 men 3.0 hours (2) Intermediate 4 men 4 hours (3) Periodic 8 men 8 hours
	nance lent tasion tission ission sections) fcts (6 sections) b ades

i			TABLE XV. HI	LH MAINTENANCE CONCEPT -	HIM MAINTENANCE CONCEPT - ALTERNATE B (BASED ON USN CH-46 MAINTENANCE CONCEPT)	HAINTENANCE CONCEPT)
	A. Sch	Scheduled Meintenance	ance			
		Component	¥1	OI		
	Por	Porward rotor transmission	ngmission	1200		
	00	Combining transmit	rotesta	1200		
	ALL		notes	1200		
	Sys	•	sections)	2400		
_	514	Slant shaft (2 se	Sections)	2400		
		Toron or 10 to the	mits (e sections)	0000		
	Aft	Aft rotor hub		1200		
_	Por	ā	lades	on condition		
_	Aft	Aft rotor blades		on condition	£	
	Por	Forward swashplate	•	1200		
_	Aft	Aft sveshplate		1200		
T.	- 1			7		
		Inspections				
		20	Crew & Elapsed Time	When Accomplished	Description	Rationale
	3	Turnaround/	2 200	4000 00 4000		
			15 atn	and after last flight	to determine obvious defects between flights, degradation that may have occurred during flight and the required	inspection is turnscound inspection is to reduce downtime between flights. It contains the minimum re- quirements to insure the integrity of the aircraft for flight.
	(5)	De11y	2 men 75 min	Prior to the first flight of the day	These requirements are to inspect for latent defects at a greater depth than performed	Purpose is to determine degradation and to insure the aircraft is safe for
					in the turnaround	flight
	Ĉ	Calendar- periodic (airframe)	10 men 15 hours	At 34-week intervals	A thorough and detailed in spection of the complete air- craft to inspect for material degradation that may have occurred during the preceding calendar period and to perform essential preventive mainte-	Calendar concept permits more efficient scheduling of aircraft operations and maintenance, thereby improving aircraft availability
					nance	

TABLE XVI. HIM MAINTEIGNICE CONCEPT - ALTERNATE C (BASED ON USAF H-) MAINTEIGNICE CONCEPT)	dition".		Description	Inspection consists of checking the helicopter for flight preparedness by performing visual examination and operational checks of certain components to assure no defects or malatjustments exist that could cause accidents or aborted missions	Inspection culsists of checking the helicopter to determine if it is suitable for another flight by performing visual examination of certain components, areas or systems to assure no defects exist which would be detrimental to further flight.	The complete inspection cycle for the weapon system is assumed to be 1000 hours. A portion of the total recurring inspection requirements is accomplished at each phased inspection. Certain items are considered basic phase requirements and will be accomplished in conjunction with each phase (100 flying hours) inspection. The inspection cycle will be repeated, starting with phase number one, 100 hours after completion of the 12th phased	Included in each phased inspection are requirements for checking certain components, areas or systems of the helicopter to determine that no condition axists which, if not corrected, could result in failure or malfunction of the component prior to the next scheduled inspection
WENANCE CONCEPT - ALTERNAT	None - All components are replaced "on condition".		When Accomplished	Prior to each flight of the day	After each flight	Every 100 flying hours	
LE XVI. HIM MAIN	None - All compo		Crew a	2 men 50 min	2 men 30 min	a men	
TABI	Scheduled Maintenance:	inspections	27.5	(1) Preflight	(2) Postflight	(3) Phased inspection	
	٠,	ú					

			TABLE XVII.	HIM MAINTENANCE CONCEPT - ALTERNATE D (BASED ON USK UM-12 MAINTENANCE CONCEPT)	D ON USH UH-1E MAINTENANCE CONCEPT)
Ľ	A. Sche	Scheduled Maintenance	Lance		
		Component	jut Int	TBO	
	0	Porward rotor trans	nesission	2000	
	8	Combining transmission	notes	2000	
	Sync	Sync shafting (6 sections)	sections)	2000	
	SIAN	Slant shaft (2 sections)	oct.ons)	0000	
	202	Forward rotor hub			
	Afe	Aft rotor hub		2000	
	Aft	Aft rotor blades		on condition	
	Porvar Aft sw	Forward swashplate Aft swashplate Engine		2000	
1	B. Insp	Inspections			
			Crew 6		
		<u>*</u>	Elepoed time	When Accomplished	Description
	3	Preflight	2 men 30 min	Prior to each flight	This inspection is to verify proper servicing and to inspect for obvious defects
	2	Postflight	2 men 30 min	After each flight	This inspection required to determine obvious degradation that may have occurred during flight, and required servicing.
	ĉ	Deily	2 mm 70 min	Prior to the first flight of the day. No more than 72 hours may elapse between such accomplishment and the following flight. The accomplishment of these requirements immediately prior to flight shall satisfy the requirements of a preflight inspection	This inspection required to inspect for latent defects at a greater depth than performed in the preflight or postflight inspections; to determine degradation and to insure the aircraft is safe for flight
	€	Calendar periodic	10 men 12 hours	At 17-week intervals	These requirements are to inspect the air- craft for material degradation that may have occurred during the preceding calendar and to perform essential preventive maintenance

TABLE XVIII. RELATIONSHIP OF TO HLH MAINTENAN	
CH-47C Maintenance Concept	Analagous HIH Maintenance Concept
Basic (Current CH-47C)	Alternate A (Proposed HLH)
Alternate A (Proposed HLH)	Basic (Current CH-47C)
Alternate B (USN CH-46)	Alternate B (USN CH-46)
Alternate C (USAF H-3)	Alternate C (USAF H-3)
Alternate D (USN UH-lE)	Alternate D (USN UH-lE)

Conclusion

The CH-47C and HLH maintenance concepts are discussed further in a subsequent section of the report, dealing with the comparative analysis of these various missions and maintenance concepts. The various maintenance concepts and missions selected for comparative analysis coded in GPSS for inclusion in the model are presented in Appendix II.

MODEL VALIDATION

INTRODUCTION

There are two fundamental approaches employed in validating a simulation model—first, employ the model to simulate a system operation, and operate the actual system in its real environment and evaluate the comparable predicted versus achieved results. Although this is the most rigorous proof of model validity, it is generally too expensive to employ on large, complex simulations such as the R&M model. Furthermore, it is impossible in the case of the HLH, since this is a conceptual aircraft.

The second method of validation is to construct a relatively limited mathematical model which identifies the significant system interactions and can, therefore, be used to make predictions of system performance against which the simulated results can be compared. The major problem encountered employing this approach toward validating the R&M model is that there has been little success in developing a deterministic model which has adequately considered the significant interactions involved in the operations and maintenance of an aircraft fleet.

Thus, it has been necessary to employ a different approach to model validation in this analysis. The primary elements of model validation as employed in this study are the calculation of expected values for those parameters which are essentially independent stochastic variables and the identification of trends generated by parametric sensitivity analyses.

One of the major problems in calculating expected values for parameters of the R&M simulation model is the extreme difficulty of estimating the impact of queuing upon parametric values. Thus, to minimize queuing (and consequently its impact), essentially unlimited spares and personnel were employed for the initial baseline validation runs. When it was concluded that the model output was acceptably correlated to the expected values in this unlimited case, the storage definitions were redefined to impose the restriction of a true TO&E upon the model operation. Various sensitivity runs were then made to ensure that the model response to parametric input variations was not counter-intuitive. Finally, the comparative analyses performed for the various mission/maintenance concept combinations provided further reinforcement of the validity and flexibility of the basic model logic.

BURN-IN ANALYSIS

Evaluating model achievement of stability is a process unique to each simulation model and its intended application. That is, a system has achieved a homeostatic condition when the major parameters by which the system performance is measured have reached a morphologically unchanging state.

The time it takes to reach this homeostatic state for the R&M simulation model is functionally dependent upon the number of transactions endogenous to the model. With the HLH and CH-47C models, the platoon size, monthly utilization, and maintenance action rates for the baseline scenarios are of sufficient magnitude to ensure stable operation in a 56-day simulation. Furthermore stability is monitored in terms of the primary measures of effectiveness for this analysis which are availability (UPTIME/TOTAL TIME) and mission completion ratio (MISSIONS FLOWN/MISSIONS SCHEDULED). Table XIX shows several of the pertinent output parameters generated for the HLH over various simulated durations. Tables XX, XXI, and XXII display the output statistics generated for various time frames of simulated CH-47C operation, with various levels of maintenance personnel support.

Figure 9 shows the effect of run duration upon availability for the various burn-in runs that were made. These data support the conclusion that 56 days is adequate for the HLH and CH-47C baseline models.

It should be noted, however, that if future analysis were to consist of a significantly lower number of transactions or different (more refined) measures of effectiveness, the 56-day run duration might not be adequate to generate stable and, thus, statistically significant, results.

MODEL VALIDATION - HLH

Table XXIII identifies the expected values and baseline output statistics for 17 selected output parameters. A review of the output statistics shows an intuitively acceptable relationship between the quantitative values generated by the baseline model and the expected values. Furthermore, it can be seen that the distribution of error appears to be random with 59 percent of the output statistics greater than expected and 41 percent of the statistics less than or equal to expected.

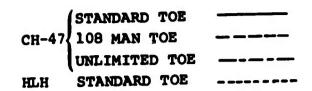
Thus, the baseline model fulfills the first criterion of validation employed in this analysis; namely, morphological equivalence between output and expected statistics.

	TABLE XIX. H (Standar	XIX. HLH BURN-IN ANALYSIS (Standard 36 Man TOE)	LYSIS		
	8	N D	TION -	HONTHS	
OUTPUT PARALETERS	ۍر	1	2	3	5
TOTAL NUMBER OF MISSIONS FLOWN	120	244	492	736	1227
TOTAL NUMBER OF MISSIONS CALLED	126	252	504	756	1260
TOTAL UTILIZATION.	240	887	984	1472	2454
TOTAL NUMBER OF DAILY INSP.	95	185	294	555	920
OF PMI INS	24	45	88	129	210
TOTAL NUMBER OF PMP INSP.	4	11	20	30	51
TOTAL DAILY MAH	57.0	111.0	176.4	330.0	552.0
TOTAL PMI MMH	240.0	450.0	880.0	1290.0	2100.0
TOTAL PMP MMH	0.08	220.0	400.0	0.009	1020.0
TOTAL UNS MAINT ACTIONS	270	566	987	1559	2592
TOTAL UNS MMH	1321.5	2226.0	3971.0	6367.5	10187.9
TOTAL SCH MMH	377.0	781.0	1456.4	2223.0	3672.0
CNS	357.7	600.3	1186.4	1750 8	2968.7
TOTAL SCH EMT	250.1	484.5	1011.9	14 / . 2	2749.8
TOTAL MMH/FH	6.74	5.82	5.25	5.56	5.37
NORM DELAY	607.8	1084.8	2198.3	3258.0	5718.5
TOTAL AIR ABORTS	4	9	12	15	23
* MAINT ACTIONS - INFLT. ABORT	4	9	14	16	24
ACTIONS	14	30	41	77	125
	148	265	470	719	1163
ACTIONS	30	28	103	174	320
* MAINT ACTIONS AT PMP	74	207	359	573	096
MALF/FH	1.12	1.16	1.00	1.03	1.06
AVAILABILITY	79.9	82.06	81.85	82.0>	81.08
*Total Mission Flight Hours Excluding Test	Excluding Test Hops and Aborted Missions	Missions			
				d viges are promoted to the same and a street of	

	æ	N D U R A	TION	S H H N O M	
OUTPUT PARAMETERS	1		3	4	5
	702	1391	2092	2802	3492
	756	1512	2268	3024	3780
TOTAL UTILIZATION	1053	2086.5	3138.0	4201.0	5238.0
TOTAL NUMBER OF DAILY INSP	289	577	898	1159	1440
NUMBER OF	35	72	103	133	170
TOTAL NUMBER OF PMP INSP	13	20	33	45	95
TOTAL DAILY MMH	1387.2	2769.6	4166.4	5563.2	6912.0
TOTAL PMI MMH	416.5	856,90	1225.7	1582.7	2023.0
TOTAL PMP MMH	585.0	900.00	1485.0	2025.0	2520.0
TOTAL UNS MAINT ACTIONS	1966	3458	5303	7045	8761
TOTAL UNS MMH	2514.65	4463.99	6983.74	9536.68	11811.05
SCH	2946.88	4599.01	7130.32	9458.55	11618.13
ONS	981.0	1948.8	2906.3	3972.1	4865.7
TOTAL SCH EMT	320.5	594.8	898.3	1205.7	1502.7
TOTAL MMH/FH	5.18	4.34	4.50	4.50	4.47
NORM DELAY	1301.5	2543.6	3804.6	5177.8	6368.4
TOTAL AIR ABORTS	31	72	105	126	164
# MAINT ACTIONS - INFLT ABORT	31		110	132	171
MAINT ACTIONS	47	DATA	120	156	202
ACTIONS	242	NOT	889	891	1130
# MAINT ACTIONS AT DAILY # MAINT ACTIONS AT PMP	655 991	AVAILABLE	1994 2391	2611 3255	3303 3955
MALF /FH	1.8	1.7	1.7	1.7	1.7
AVAILABILITY	87.89	88.17	88.20	87.96	88.15

TABLE XXI.	(108 MAN TOE)	(201) 21 001			
	1	RUN DUR	ATION -	NONTHS	
OUTPUT PARAMETERS	1	2	ε	4	5
TOTAL NUMBER OF MISSIONS FLOWN	619	1347	2022	2692	3359
TOTAL NUMBER OF MISSIONS CALLED	756	1512	2268	3024	3780
TOTAL UTILIZATION	1018.5	2020.5	3033.0	4035.0	5038.5
TOTA! NIMBER OF DAILY INSP	278	898	828	1122	1397
NUMBER OF	32	59	65	127	160
NUMBER OF	14	20	33	44	52
TOTAL DAILY MMH	1334.40	2731.20	3974.4	5385.6	6705.6
TOTAL PMI MMH	380.8	773.5	1154.3	1511.3	1904.0
TOTAL PMP MMH	630.0	0.006	1485.0	1980.0	2340.0
TOTAL UNS MAINT ACTIONS	1993	3325	5086	6573	8296
TOTAL UNS MACH	2474.14	4380.47	6920.42	9030.59	11353.03
TOTAL SCH MMH	2793.45	4461.00	6809.00	9216.00	11183.00
TOTAL UNS EMT	2001.0	4136.9	6563.2	8614.0	10885.2
TOTAL SCH EMT	389.3	678.0	1082.4	1351.2	1645.4
TOTAL MMH/FH	5.17	4.38	4.53	4.52	4.38
NORM DELAY	2390,3	4834.9	7645.6	9965.2	12530.6
TOTAL AIR ABORTS	31	7.1	101	139	178
# MAINT ACTIONS - INFLIGHT ABORT	31	7.1	103	141	180
# MAINT ACTIONS INFLT	41	98	136	177	226
ACTIONS	214	440	629	837	1001
ACTIONS AT	619	1308	1964	2581	3295
# MAINT ACTIONS AT PMP	1028	1420	2254	2837	3544
MALE/FH	1.8	1.7	1.7	1.6	1.6
AVAILABILITY	77.76	17.51	76.29	76.82	76.69

TABI	TABLE XXII. CH-4	CH-47 BURN-IN ANALYSIS (STANDARD TOE - 64 MEN	ANALYSIS - 64 MEN)		
	R	UN DURA	NOIF	MONTHS	
OUTPUT PARAMETERS	ι	2	3	f I	5
TOTAL NUMBER OF MISSIONS FLOWN	677	1342	2010	2678	3331
TOTAL NUMBER OF MISSIONS CALLED	756	1512	2268	3024	3780
TOTAL UTILIZATION	1015.5	2051.5	3082.9	4,07.9	5115.4
TOTAL NUMBER OF DAILY INSP	277	527	780	1053	1283
NUMBER OF	34	65	3	128	158
TOTAL NUMBER OF PMP INSP	11	19	33	42	52
TOTAL DAILY MMH	1329.6	2529.6	3744.0	5054.4	6158.4
	404.6	773.5	1118.6	1523.2	1880.2
TOTAL PMP MMH	495.0	855.0	1485.0	1890.0	2340.0
TOTAL UNS MAINT ACTIONS	1675	3137	4981	6415	1961
TOTAL UNS MMH	2107.03	4194.23	6771.26	8702.35	11008.81
SCH	2660.75	4563.62	6795.27	8682.01	10537.69
ONS	2196.8	5348.2	8361.4		14570.4
TOTAL SCH EMT	325.6	682.8	1077.4	1435.9	1711.8
TOTAL MMH/FH	4.51	4.19	4.31	4.15	4.13
NORM DELAY	2522.4	6031.0	9438.8	12132.8	16282.2
TOTAL AIR ABORTS	33	55	86	125	170
# MAINT ACTIONS - INFLT ABORT	34	57	101	135	175
* MAINT ACTIONS INFLT	48	98	138	191	239
# MAINT ACTIONS DURING PMI	202	431	631	849	1044
ACTIONS	631	1611	1790	2336	2849
# MAINT ACTIONS AT PMP	760	1363	2321	2904	3654
MALF /FH	1.65	1.53	1.62	1.56	1.56
AVAILABILITY	76.54	71.95	70.73	71.78	69.71



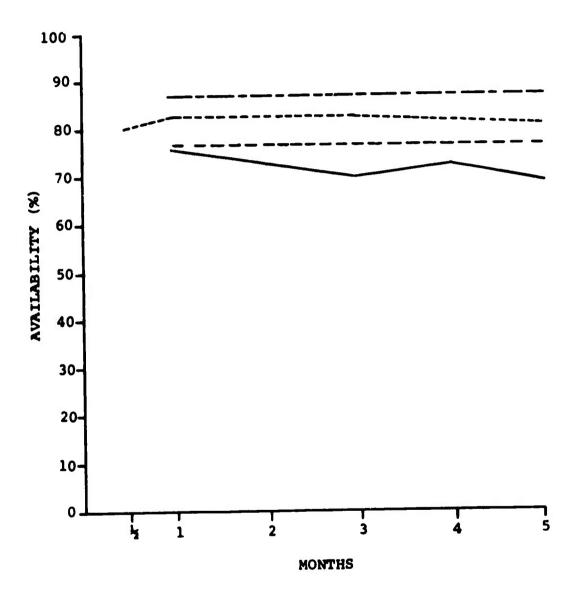


Figure 9. Impact of Run Duration on Availability.

TABLE XXIII.	HLH VALIDATION ANALYSIS	
OUTPUT PARAMETERS	EXPECTED VALUES	BASELINE OUTPUT
Total number of missions demanded	905	\$ 05
Total number of missions completed	*	495
Total utilization	886	066
Total number of daily inspection	less than 504	348
Total number of PMI inspection	08	88
Total number of PMP inspection	20	23
Total daily MMH	less than 302.4	208.8
Total PMI Meth	800	850
Total PMP MMH	400	460
Total unscheduled maintenance actions	1038	1070
Total scheduled MMH	1502.4	1518.8
Total air aborts	10	6
No Maintenance actions inflight abort	49	46
No. Maintenance actions during PMI	480	460
No. Maintenance actions at daily	less than 151	130
No. Maintenance actions at PMP	00*	425
Malfunctions per Flight Hour	1.05	1.08

HLH SENSITIVITY ANALYSIS

The second step in validating the HLH model is to ensure that the model responds to parametric changes in an intuitively acceptable way. The data generated during this analysis is contained in Appendix I. This section identifies several of the trends displayed by this data and discusses their content and implications.

Figure 10 relates the platoon availability (UPTIME/TOTAL TIME) to the unscheduled maintenance action rate. Generally, the relationship between the data and the trend line is quite acceptable. There is however a notable exception identified with (1) on the plot.

A review of the data which generated Figure 10 shows that the outlying point is justifiable in an analytical sense. The reason for this excursion is that the point 1 plotted at 67.09-percent availability is a result of the evaluation of model sensitivity to variations in platoon size. Specifically, this point is representative of a platoon size of 3 aircraft attempting to fly the baseline mission normally flown by a platoon of 11 aircraft.

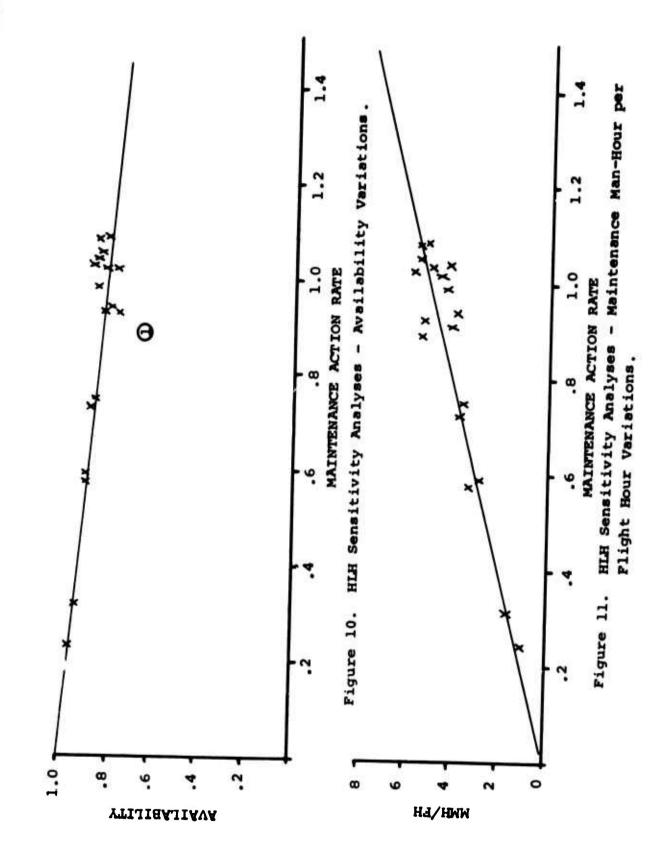
The data plotted in Figure 11, relating direct maintenance manhours/flight hour to unscheduled maintenance action rate and Figure 12, which shows availability as a function of TOE size, compares quite well to the plotted trends. Since these trends are of the shape generally displayed in the literature, no further discussion of these data appears necessary.

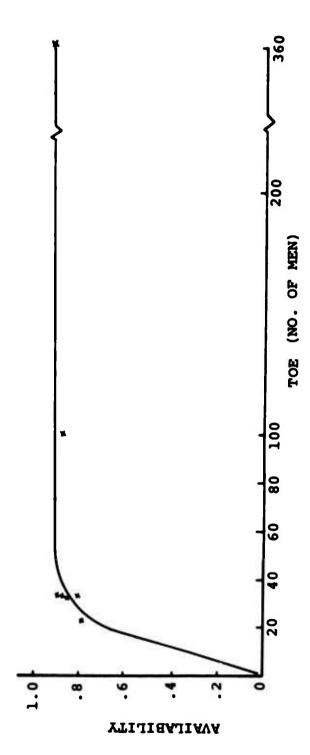
Finally then, it appears, based on the comparison of the baseline results with the expected values and the results of the sensitivity analysis, that the HLH R&M simulation model is, in fact, a valid representation of actual operations and maintenance environments it purports to depict.

MODEL VALIDATION - CH-47C

4.

Table XXIV identifies the expected values and baseline results for 17 selected output parameters. A review of the results versus the parametric expected values confirms the statistical equivalence of results. Furthermore, the distribution of error for the 17 parameters for which expected values could be calculated appears to be random with 44 percent of the deviation positive, and 56 percent of the deviations zero or negative. Thus, it would appear that the CH-47C model passes the first step of validation as defined in this report; namely, the morphological equivalence of model results and expected results.





HLH Sensitivity Analyses - Impact of TOE Size Upon Availability. Figure 12.

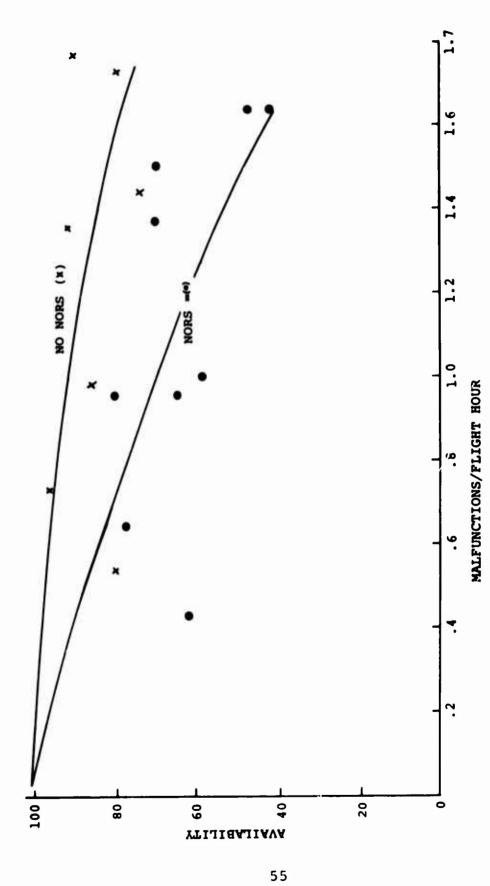
TABLE XXIV. CH-	CH-47C VALIDATION ANALYSIS	
OUTPUT PARAMETERS	EXPECTED VALUES	BASELINE OUTPUT
Total number of missions demanded	1512	1512
Total number of missions completed	1426	1372
Total utilization	2139	2058.0
Total number of daily inspection	less than 896	089
Total number of PMI inspection	99	69
Total number of PMP inspection	22	20
Total daily MMH	less than 4300	3264
Total PMI MMH	785.4	821.1
Total PMP MMH	066	0.006
Total unscheduled maintenance actions	2888	2920
Total air aborts	99	99
No. Maintenance actions inflight abort	99	99
No. Maintenance actions inflight	92	95
No. Maintenance actions during PMI	442	473
No. Maintenance actions at daily	less than 1526	853
No. Maintenance actions at PMP	1474	1433
Malfunctions per Flight Hour	1.35	1.42

CH-47C SENSITIVITY ANALYSES

The second step in validating the CH-47C model is to perform several trend analyses which will demonstrate that the model responds to parametric variations in an intuitively acceptable manner.

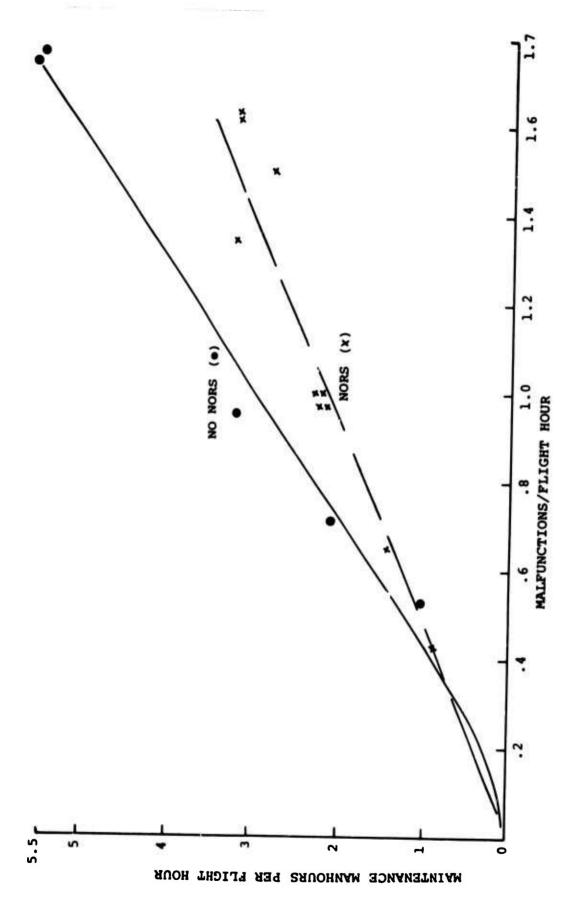
Figures 13 and 14 show the impact of changes in maintenance action rate upon platoon availability and maintenance man-hours per flight hour, respectively. In both of these figures, there are two distinctly different populations. These populations exhibit the impact of NORS delay upon availability and maintenance man-hours per flight hour. It is obvious that availability must decrease when NORS delays are possible. is not obvious that maintenance man-hours per flight hour should decrease when NORS delays are encountered. However, after careful review of the data, it is found that the MMH/FH decreases where NORS delays are encountered because less maintenance is being generated, due to the restricted platoon utilization. This is primarily due to the reduced number of periodic inspections encountered during situations of lower utilization. It can be seen, therefore, that the model responds in an intuitively acceptable manner for those cases presented.

This proper response of the model to parametric changes, when combined with the previously discussed statistical equivalence of model results with expected values, constitutes the validation of the CH-47C R&M model.



CH-47C Sensitivity Analysis - Availability as a Function of Malfunction Rate. Figure 13.





COMPARATIVE ANALYSIS

INTRODUCTION

In order to demonstrate model validity and flexibility, an analysis was performed, comparing various maintenance concepts over various mission profiles. It was the main intention of this exercise to demonstrate model validity through a simulated maintenance analysis, not to perform a rigorous analysis of each of the maintenance support plan capabilities. As such, the results of these analyses should be considered indicative of the relative merits of each concept, rather than absolute statements of the quantitative differences between the various alternate maintenance concepts.

COMPARATIVE RESULTS

CH-47C

Appendix III contains the results of the twenty cases run during the CH-47C comparative analysis. Table XXV shows the sequence in which the simulations took place.

Figures 15 through 17 identify the types of information that can be extracted from the data contained in Appendix III for the CH-47C.

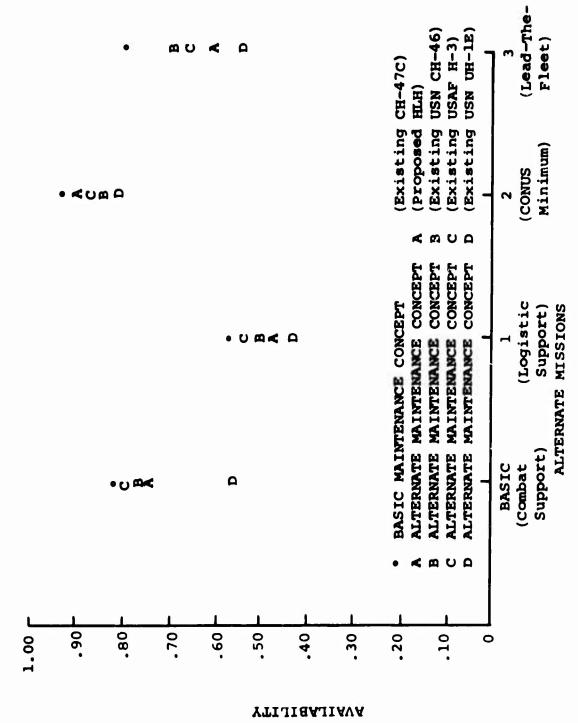
In preparing the inputs for the various comparative analyses, it is usually necessary to reestimate the occurrence probabilities and maintenance action distributions for the various decision locations within the model. In doing this it is recommended that the method previously discussed in the HLH R&M data section of this report be used.

Whenever the mission/maintenance concept variation is significantly different from the baseline, it may be difficult to estimate the achievable utilization. This is especially the case for surge missions with limited TOE's. Thus, the estimated distribution of inspections, and consequently the maintenance distribution and MALF/FH, rate may not occur as anticipated. In these situations, the alternatives are to redistribute the maintenance actions and rerun the case or to modify the output using a method which will transform the output statistics to a common malfunction rate.

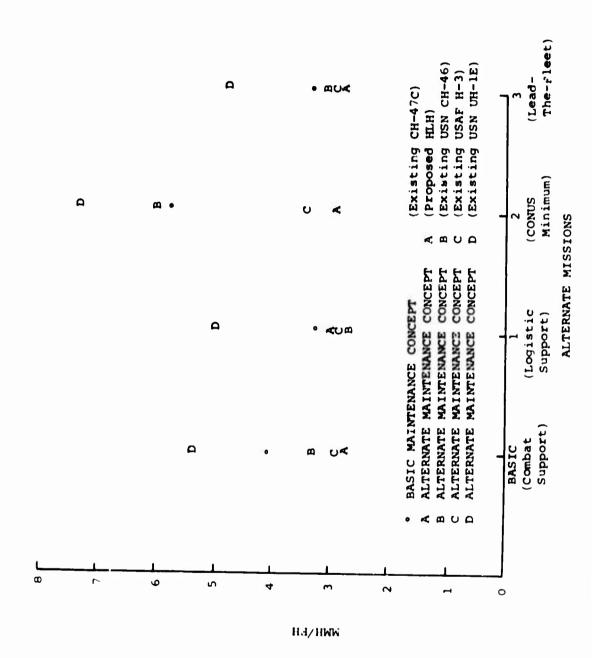
HLH

The results of the 20 cases run during the HLH comparative analysis are contained in Appendix III. Table XXVI identifies the general sequence in which these runs were made. The

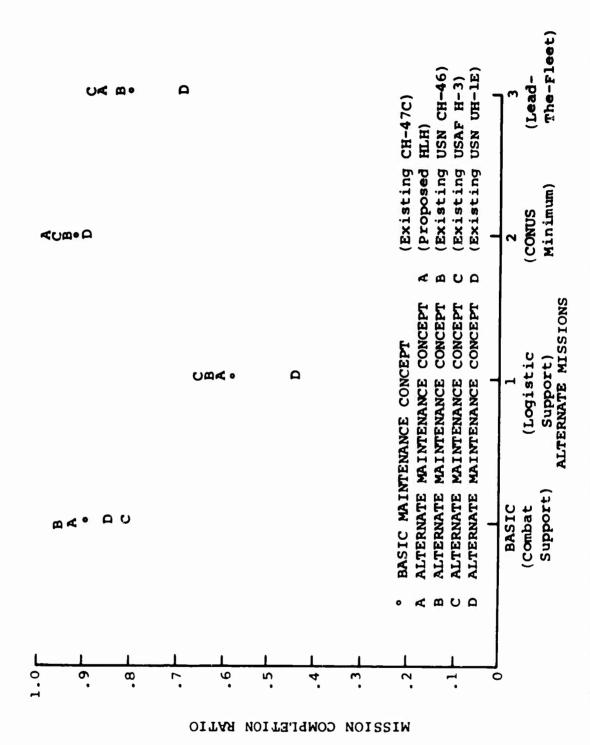
TABLE XXV. SELECT	ION OF CH-47C	SELECTION OF CH-47C ALTERNATE MISSIONS	IS AND MAINTENANCE	E CONCEPTS
Missions Maintenance Concepts	Logistic Support 180 Hrs/Month	CONUS Minimum 30 Hrs/Month	Ft. Rucker Lead-The-Fleet 100 Hrs/Month	Combat Support Baseline 54 Hrs/Month
Basic Baseline Daily - End of day PMI - Every 25 hrs PMP - Every 100 hrs 1200-2400 hr TBO's	7	4	3	1
Alternate A Firm - After each day 10 hr inspection Phased PMP On Condition	9	14	13	ιΩ
Alternate B Turnaround - After each flight Daily - Prior to first flight Calendar - Every 34 weeks	10	16	15	7
Alternate C Preflight - Prior to first flight Postflight - After each flight Phased PMP - 100 hr intervals On condition	6	17	18	œ
Alternate D Preflight Postflight Daily Calendar - 17 week intervals	12	20	19	11



CH-47C Comparative Analysis - Availability Variations. Figure 15.



CH-47C Comparative Analysis - Maintenance Man-Hour per Flight-Hour Variations Figure 16.



CH-47C Comparative Analysis - Mission Completion Ratio Variations. Figure 17.

TABLE XXVI. SELI	SELECTION OF HLH	HLH ALTERNATE MISSIC	MISSIONS AND MAINTENANCE CONCEPTS	ICE CONCEPTS
Mintenance Concepts 1	S Container Unloading 150 Hrs/Month	CONUS - Minimum Util 20 Hrs/Month	Combat Support Surge 300 Hrs/Month	Combat Support Baseline 50 Hrs/Month
Basic Baseline Firm - End of day 10 hour 50 hour phased On condition	٣	4	2	1
Alternate A Daily - End of day Intermediate - 25 hours PMP - 100 hours	19	14	7	ហ
Alternate B Turnaround - After each flight Daily - Prior to first flight Calendar - 34 weeks	17	15	ω	11
Alternate C Preflight - Before every flight Postflight - After each flight Phased PMP - Every 100 hours On condition	20	13	6	9
Alternate D Preflight - Before each flight Postflight - After each flight Daily - Before first flight Calendar - 17 weeks	18	16	10	12

information extracted from these data are presented in Figures 18 through 20.

ANALYSIS AND RANKING OF COMPARATIVE RESULTS

In order to rank the various maintenance concepts, it was necessary to derive a measure of effectiveness which could be used for comparing the results of the simulations. The three chosen parameters are availability, mission completion ratio, and total maintenance man-hours per flight hour. The weighting factors employed on these parameters are displayed in the following equation.

INDEX OF MERIT = (.75) (MISSION COMPLETION RATIO)

+ (.15) (AVAILABILITY) +
$$\frac{(.10)}{(MMH/FH)}$$

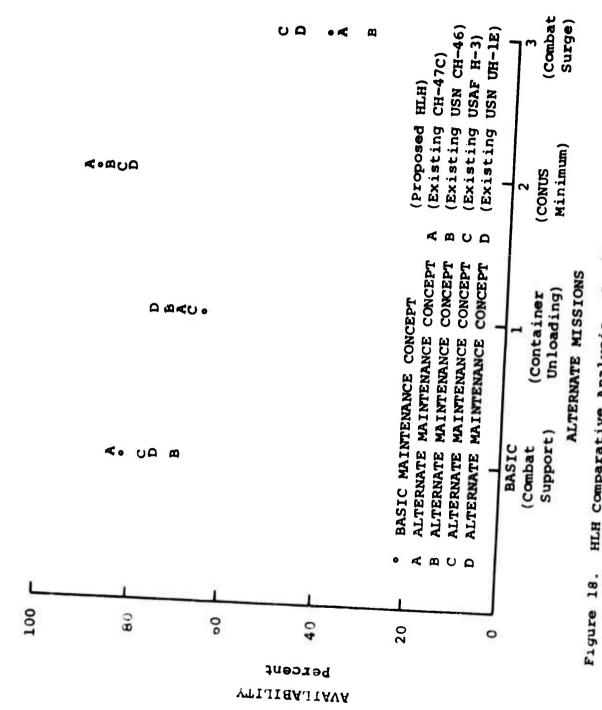
To be consistent with the terminology used in Appendix III, the term Index of Merit is used in place of Measure of Effectiveness.

This Index of Merit has been plotted for each mission for the CH-47C and HLH in Figures 21 and 22, respectively. A review of these figures show that the previously existing (or basic) maintenance concepts are the best for most missions.

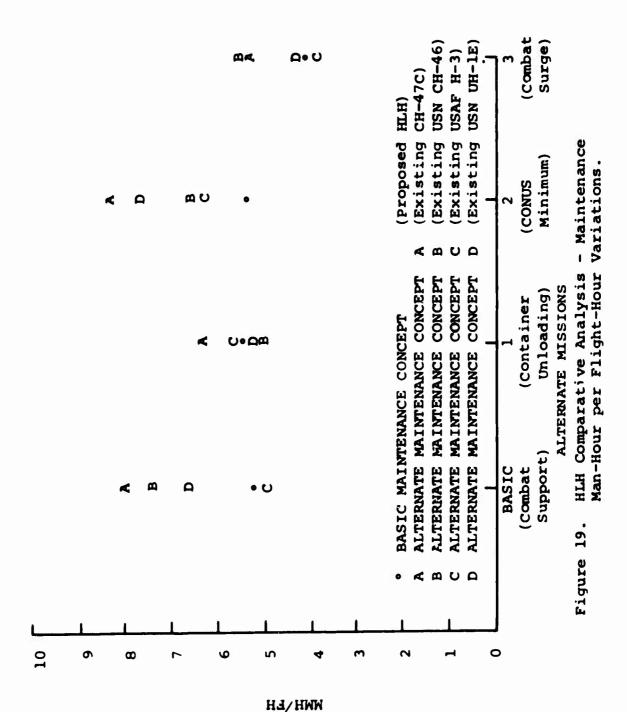
The ranking for the CH-47C and HLH maintenance concepts, resulting from an analysis of these figures, is shown in Table XXVII. This ranking has been derived by assuming that all the alternate missions are of equal weight.

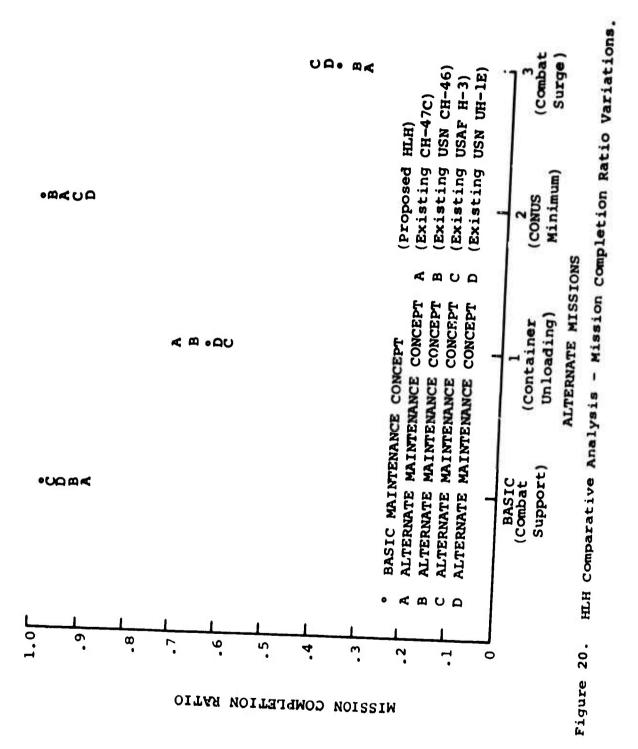
CONCLUSIONS OF COMPARATIVE ANALYSIS

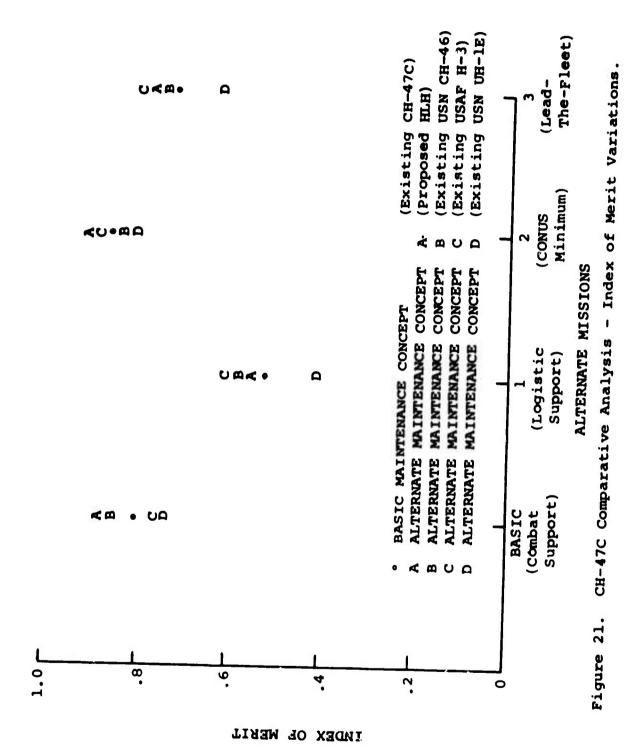
Table XXVII shows that the HLH basic maintenance concept performs best for the cross section of missions for both the CH-47C and HLH with respect to the identified index of merit. Modifying the index of merit could change this conclusion; however, it appears that the R&M simulation model is sufficiently sensitive to reflect the benefits of alternate maintenance concepts.

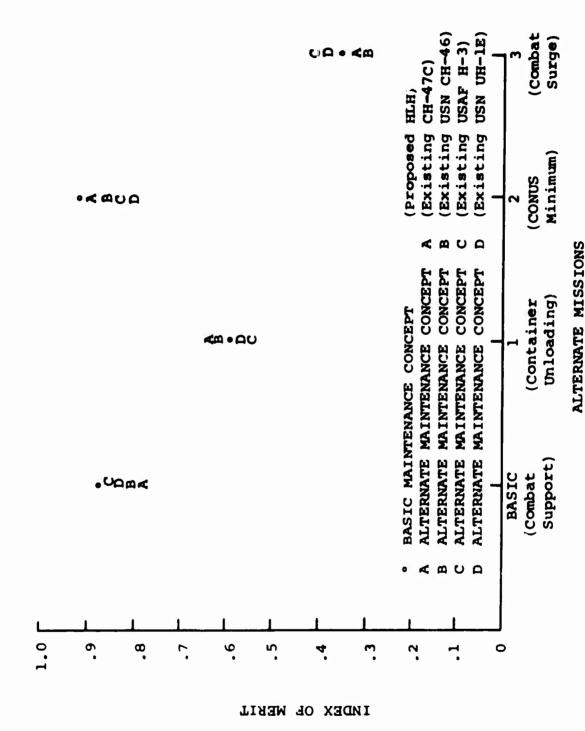


HLH Comparative Analysis - Availability Variations.









HLH Comparative Analysis - Index of Merit Variations. Figure 22.

	TABLE XXVII. RELATIVE RANKI	NG OF MAI	RELATIVE RANKING OF MAINTENANCE CONCEPTS
	CH-47C		нгн
Rank	Maintenance Concepts	Rank	Maintenance Concepts
	Alternate Maintenance Concept A	-	Basic Maintenance Concept
7	Alternate Maintenance Concept C	7	Alternate Maintenance Concept C
м	Alternate Maintenance Concept B	ю	Alternate Maintenance Concept A
4	Basic Maintenance Concept	4	Alternate Maintenance Concept D
ıa	Alternate Maintenance Concept D	5	Alternate Maintenance Concept B

CONCLUSIONS

As a result of this study, valid R&M simulation models for the CH-47C and HLH are now available for the first time. In their present form, the models are more than adequate for further analyses similar to those performed in this study. That is, the model is extremely useful in evaluating the impact upon system effectiveness of major R&M differences.

Model validity has been established through various analytical techniques, including the evaluation of model sensitivity to parametric input changes. Model flexibility has been demonstrated through the various comparative analyses. Finally, model plausibility has been confirmed through the extended application of the model, observation of model response to logical changes, and detailed analysis of model operation with respect to logical validity. This last point is an almost intuitive judgement of the model's capability, based upon all aspects of model representation of realistic operations and maintenance environment.

In summary then, the developed models are valid representations of the actual O&M environments for the aircraft they simulate. These models are flexible to provide the Army with a tool for rapid response to fairly complex R&M questions. It should be noted, however, that the model's value is functionally dependent upon its level of detail. As such, it is a complex tool, requiring substantial skill in application and analysis of results. As such, it is critical that the application be made by people competent in the analytical areas of operations research and familiar with the logical structure of the programs. These powerful and complex models, although extremely valuable if well applied, could be equally misleading and, consequently, detrimental if misused.

RECOMMENDATIONS

It is recommended that the Army continue to develop the R&M model to maximize its flexibility and utility. It must always be remembered that the simulation model derives its value from its application, not merely its existence. Therefore, in most cases, further refinement to improve user orientation is cost effective. This position is reinforced by a statement taken from Ackoff in Scientific Method*.

"In general, the amount of analysis required to construct a model is inversely related to the ease of manipulating it once it has been constructed."

Some of the specific areas that are considered viable candidates for modification are:

- Develop input-controlled output editor to provide the user with flexibility in selecting output parameters relevant to his analysis.
- Eliminate constants from logic. Wherever possible, where constants remain in the logic, they should be fully justifiable and justified.
- Develop deterministic spares routine which could be a user-selected option available in lieu of the current probabilistic routine.
- Modify off-aircraft maintenance routines to allow for the identification of maintenance personnel doing off-aircraft repairs.
- Develop personnel substitution routine with user definition of policy of personnel substitution.

None of these recommendations are critical to the current R&M model. They are presented here as candidates for future refinement and enhancement or generalization of the model to further increase its utility.

^{*}Ackoff, Russell L., SCIENTIFIC METHOD OPTIMIZING APPLIED RESEARCH DECISIONS, New York, John Wiley & Sons Inc., 1962, p. 110.

APPENDIX I RESULTS OF SENSITIVITY ANALYSES

To demonstrate model sensitivity to changes in various maintenance parameters, several sensitivity analyses were identified and simulated. These analyses were structured to demonstrate model response to parametric changes. The discrete situations simulated were significant variations in parametric input, rather than meaningful representations of the simulated aircraft. As such, the value of the analyses is found in the identified trends and model responses, rather than in the quantitative outputs generated.

CH-47C

The CH-47C sensitivity analyses considered model response to parametric changes in the areas of TOE size and NORS probabilities. The data derived from these simulations is displayed in Table XXVIII. These results are discussed in the Model Validation section.

HLH

The HLH sensitivity analyses considered model response to parametric changes in four areas:

- Number of aircraft per platoon
- TOE size and distribution of personnel
- PMI/PMP intervals
- Maximum number of up-squawks per aircraft

The data derived from the simulations performed in these analyses are presented in Tables XXIX through XXXII. A discussion of these results and the identification of trends displayed by these analyses are contained in the Model Validation section.

			Essent 1	Essentially Infinite TOE	ite TOE			
	9			,		,	,	
Output Parameters	Basic	Basic	Basic	B	~ ×	Ç	9	Maint, Conc.
Total number of massions floor	702	235	356	243	240	٠, ١	326	No.
	15.6	252	250	. 4	200	253	9 0	
utilization	1053	152.5	382 \$	16.4	260	3582	0 0 0	
		1			2	26.5	•	
number of daily inspe	289	9	2 2 2 2	000	29	,	3.	
number of PMI inspect	35	17		218	32	196	209	
number of	13	\$	m	~	•	-	0	
	0	0	٥	0	0	262	0	
1	1387		120	417.6	11.6	0	163.2	
d,	416.5	202.3	166.6	E5.4•	280	117.6	62.7	
Francisco	282.0		135.0	234.0	140	10.5	0	
v.	9961	119	364	967	514	260	213	
	21.20	7.5	\$	34	25	99 (- (
Total unscheduled min	21.38.8	678.31	435	600	624.9	282.7	238.7	
	0.000	1302.3	640	7.7.	7.00.0	2.89.6	222.9	
	320.5	136.2	117.6		7.967	700	777.7	
	200	7 7 7 8	2 20		7 0			
			07.5	10		₹.	7.7	
	-		0	0				
GSE delay	0	0	0	0	٥	•	0	
NORS delay		0	0	0	0	0	0	
NORM delay		9.099	283.3	615.1	512.2	358.6	391.2	
	31	16	6	œ	11	13	7	
maintenance actions at	0	0	0	0	0	125	d	
maintenance actions at	0	0	0	0	0	0	0	
maintenancy actions	G D	11	7.	17	17	22	13	
maintenance actions dur	242	194	160	100	372	65.	78•	
maintenance actions at	655	260	98	305	34	0	115	
	166	135	56	9	0	35	0	
Personnel nonzer entries	006.	005	135	\$ 20	160	8	8	
MITR distribution	1.5	4,	2.5	1.3	e.	1.2	4	
Off auroraft with	0	0	0	0	٥	0		
Availability	69. 78	91.06	85.94	91.67	74.6	95.14		
	a.	. 75	56.	1.36	1.43	.72	.53	_

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r of missions flown	704 756 1056.0 97 114 565.0 547.2 169.5.30 667 667 111 667 1169.5 1169.5 1169.5 1169.5 1169.5 1169.5 1169.5	300 300 450.0 28 234 70.2 204 220.8 520.8	1 2	0 0000000000000000000000000000000000000	1078.5 1078.5 1078.5 809 809 809 147.0 147.0 1029 1159.9
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Availability 70.36 69.55 77.51 ce 22	22 62	NO.	_	-	0
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1.37 1.50 .64 .95 .43	99.	-	1.64 1.0	0 1.0	50
Postflights		-	-		2

	Expected		Output Values			
	Value	465	253	256	257	Run No.
Control Parameter	(Baseline)	6/27	1/3	1/3	1/3	Date
Total number of missions flown	247	247	97.	;	:	
Total number of missions called	252	252	250	255	187	
	464	767	108	787	727	
number of	0	0			•	
	<252	163	219	87	21	
Total number of PMI inspections	38	45	?	+ 3	33	
Total number of raw inspections		11	10	6	7	
daily Men	2 121 3	;				
	380.0		131.4	52.2	12.6	
-	140.0	220	20.00	200	330	
Total unscheduled maintenance actions	1.05 X utilization	215	200	100	1	
	0 =		340	•	• • • • • • • • • • • • • • • • • • • •	
		1575.5	1991 40	1400 4	1740	
		737.8	761.40	662.2	482.6	
		353.2	458.9	325.3	333.6	
		475.5	475.5	426.6	329.7	
Total Maker	•	4.45	5.28	4.23	5.60	
	0 0	0	0	•	•	
		0 0	0	0	0	
NORS delay	•		0	•	0	
NORM delay		0 0 0		9		
Total air aborts	5.04	7.079	,,,,	6.16	663.3	
Number maintenance actions at preflight	0	0	•	•	20	
Number maintenance actions at aircrew	(0) ≡	0				
Number maintenance actions inflight		27	32	22	15	
Number maintenance actions during PMI		235	214	235	178	
Number maintenance actions at daily		95	74	33	1	
Availability	(18) (no. PMP's)	195	193	157	125	
Personnel nonzero entries		86.3	87.35	81.35	67.09	
MTTR distribution		9 6	933	350	327	
Off aircraft MTTR	0 ==		:			
MALE /PH	1 05	20.			,	
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Number of aircraft				,	,	Ī
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	00162	597	558	260	195	3 01.0
Control P/rameter	(Baseline)	6/27	3/6	3/4	3//6	Date
Total number of missions flown	267	247	247	246	7.8.7	-
O LOCAL	252	252	252	252	25.2	
utilizatio	767	3	767	492	767	
	0		0		0	
number of	. 252	163	157	149	158	
	38	3	7	7	7	
	7	11	12	10	12	
Total preflight MWH	0	0	0	0	0	
	151.2	77.8	94.2	89.4	94.8	
	380.0	420	410	430	410	
Had did	140.0	220	240	200	240	
	1.05 X utilization	515	532	456	534	
	0	0	0	0	0	
	•	1575.5	2021	1612.2	2050.9	
		737.8	744.2	719.4	744.8	
		353.2	474.1	1.707	501.6	
Total scheduled ETT	•	475.5	566.9	432.2	578.2	
			0.32	•		
		-	00	-	o c	
- W			0	0		
NORS delay		0			-	
NORM delay		828.7	1041.0	916.3	1079.8	
	5.04	2		9		
Number maintenance actions at preflight	0	0	٥	0	0	
actions.	(0)	0	-	7	-	
actions.	(.10). (no. mission flown)	27	25	20	25	
actions		235	221	254	221	
actions at	. (ac)	26	25	Ş	24	
Number maintenance actions at PMP	(18) . (no. PMP s)	195	227	133	231	
Availability	•	28	82.82	94.98	82.17	
Personnel nonzero entries	•	908	935	714	8.05	
MILE Greenston		. 97	1.14	1.01	1.10	
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HA/ STOR	1.05	1.0	1.08	.93	1.08	
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	Expected			- 1	Output Values	- 1			
Control Parameter	Value (Baseline)	6,27	155	156	158	7/5	335	57 9 7/6	Pete
And the second of the second o	7	747	345	244	24.6	3.4.8	346	34.	
n mber of	- C4 7 40 4 C4	252	252	252	252	252	252	252	
	767	767	490	887	192	961	192	190	
number of	0	٥	0	0	0	0	٥	0	
number of	. 252	163	193	186	176	178	187	185	
TOTAL DEBON OF PRE DESPRICTIONS	30 f	7 2	У С	•	-	89 7	• •	000	
prefinght	0	• •	00		0	0	• •	0 0	
daily wen	151.2	77.00	115.8	111.6	05.	106.80	112.20	111	
	380.0	420	20	064	0	180.		200	
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Total unwented name name total and total	1.05 X Utilization	2	9 0	263	167	687	100	900	
		1575.5	4.38	1271.3	1231.5		701.3	1307.8	
		137.8	00		365.6		192.2	611.0	
	•	353.2	٠ •	314.7	286.3		208.3	350.9	
Total woneduien mai	1 1	474.5	7.0	336.6	194.8	212.3	7.0	344.1	
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Number maintenance actions at aircres	(0)	0	0	0	0	~	0	0	
actions inflight		27	19	27	22	23	27	17	
actions	(5) (30 PMI's)	235	29	270	16	56	77	272	
Number maintenance actions at daily	000	9 6	61	B (59	£ .	7.2	9	
Average and the contract of th	0	66.3	_ _	89.26	92.04	92.34	95.76	88	
Personnel nonzero entries	-	908	7	964	507	4.85	268	450	
MITH distribution	1	. 93	i -	1.05	1.24	1.30	1.66	1.10	
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	72	6/28	***	253	492	0	163	42	90	97.8	420	200	10	1700.4	717.8	632.0	4.66	0	0 0	0	984.9	9	00	20	232	28	190	630	66.	0	1.02	36		6,6
Output Values	A1	6/28		542	490		138	7	= =	82.8	430	220.0	000	1379.4	732.8	9 9 9	4.08	0	00	0	1374.1	7	00	28	197	45	182	1088	.95	0	.93	×		•
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	906	6/28	246	252	492	0	180	75	30	108.0	450	518	0	2269.9	87/18	402.0	5.80	0	00	00	842.2	90	00	‡	224	16	279		1.199	0	1.05	360	1	90,90
	465	6/27	247	252	464	0	163	7:	•	97.8	420	515	0	1575.5	353 3	475.5	4.45	0 0	0 0		828.7	s 6	00	27	235	95	66.3	908	.93	0	1.04	36	1	13.6
Expected	Value	(Baseline)	247	252	494	0	252	70	ia ia	<151.2	380.0	1.05 X utilization	0 =			,		3 0	3 0	0 ==	' ;		(0)	(.10). (no.missions flown	(5). (no.PMI's)	(18) (no paper)	(8 353.00) - (87)	•	•	0	1.05			
		Control Parameter	number of missions flown	number of missions called	utilization	number of preflight inspections	f par inspections	number of PMP inspections	preflight MMH	daily MMH	PMP NMH	unscheduled maintenance actions	scheduled maintenance actions	unscheduled MMH	unscheduled EMT	scheduled EMT		ground abort			NORM delay	Number maintenance actions at preflicht	actions	actions	Number maintenance actions during PMI	actions		Personnel nonzero entries	MITH distribution	W. I.			Personnel types 01, 02 - first shift	

APPENDIX II INPUT CHANGES FOR COMPARATIVE ANALYSES

CH-47C

Tables XXXIII through XXXVI identify the various alternate mission/maintenance concept combinations simulated for the CH-47C comparative analyses.

HLH

Tables XXXVII through XXXIX identify the alternate missions employed in the HLH comparative analysis.

Tables XL through XLIII contain the alternate maintenance concepts used in the analysis.

All combinations of runs made in the HLH analyses can be reproduced by combining the proper mission/maintenance concept alternatives.

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	99919	#189 ***********************************	# 1																														

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CH-47C ALTERNATE MAINTENANCE CONCEPTS - MISSION 2
        TABLE XXXV.
                                                    ************ ****** *****
                   4188174 8.84810
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                 4189134 #
                                              TAINTENANCE CONCEPT A
05075100
09927600
05027705
01020500
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                                                                                                                                                             #193,930
#193,133
                                                                                                                                                             *************
                4188134 2
                                                **************
                  0000000 0000005 0000000 750000011 00000010 25000000000000
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03|41|00
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 1,19121 1,1991
                 *************
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*#171, 2), 60

*#174, 13, 130

*#174, 13, 130

*#171, 13, 13

*#171, 13, 13

*#171, 13, 13

*#171, 13, 13
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$6,170 WC173W 401,38
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09141200
09141200
                 | 2,0000 | 2,0000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,000 | 2,
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09165909
99165909
                                                                                                 . 3448 949 HINDS- IS DEEN
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                                                                                                                                                                                           ......
                                              41(1,1),2)
41(1,1),3
41(1,0),31
                    1417141
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TABLE XXXVI.
                  CH-47C ALTERNATE MAINTENANCE CONCEPTS - MISSION 3
      4111114 1
                    SIERE THEORY SOMMUSTVIAM
       CH-47 HISSIDY S - 100 HRS/4D- FT. RJCKER- LEAD THE FLEET
                                                                 3 A/2: PER SITE-NO STANDAY
le
                                                                 ************
       INITIALI
                  441(1-10,10),1
                                          DISAB, E NCIERIP
                                                                **************
       INITIALI
                   441(10,5),1
                                                                 ***********
       INITIALI
                   441(10,11),15
                                                                 ************
       INITIALI
                  441(1,12),10
                                                                 **********
       INTTIALI
                  K1 94.1
                                                                 ************
       INITIALI
                  441(1,15),0
                                                                 ***********
                  K191,3
       INITIALI
                                                                 **********
       INITIALI
                  K192.5
                                                                 *************
       INITIAL
                  K193,480
                                                                ************
       INITIALI
                  441(2,12),35
                                                            *************************
      4 I SSIDN 3
                    MAINTENANCE CONCEPT A
2
      00010016
                  501002
                                                                        00025100
12
       PETTON
                  3C.1VF
                                                                        00027600
0.50001
            0.99992
                                                                        00027700
0.30005
       75-94-0.00000 0.700013' 0.800080 0.999925
CH-47 CA31 -R3FJCR. TR -CFYERF 001 - 6 MC1881F TB-FC
                                   0.00020
                                                                        00028500
                                                                 ************
       3 A/E PER SITE-ND STANDSY
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       INTTIAL
                  441(1-10,10),1
                                         ATSSION 3,A
                                                                **************
       INTTIAL
                  441 (10,5),1
                                                                 ............
       INITIALI
                  441(10,11),15
                                                                 ***********
       INITIAL
                  441(1,12),10
                                                                 ************
       INITIALI
                  x194,1
                                                                 ************
       INITIALI
                  441(1,15),0
                                                                 ***********
       INITIALI
                  K191,3
                                                                **********
       INTTIALI
                  £192,5
                                                                ******************
       INITIALI
                                                                *************
                  K193,480
       INTTIAL
                  441(2,12),35
                                                            **************************************
       A TESSEC THIAF TACHS
                              -DAILY, 10 48, 50 48 PPI
                                                            *****************
       INTTIAL
                411(1,8),70
                                                            ****************************
       THITTALE
                                                            *****************
                  441(1,9),35
       INITIAL
                  441(5,1),25
                                                            *************************
       INITIALI
                  4×1(3,1),70
                                                            ****************
       INTTIALI
                  441(10,1),25
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       INITIALI
                  411(11,1),35
                                                            ******************
       INITIAL
                  X150,500
                                                            ****************************
       INITIALI
                  #1 00.100
                                                           ****************
       INITIAL
                  446(-12,1-16),30000
                                          ALBBIDH 3,A
                                                               ************
      4133134 3
                   MAINTENANCE CONCEPT &
     . . . . . . . . . . . . .
                  1499945
                             .....
                                         75000011
                                                      2444416
                                                                 25000000023400
56
      PUNCTION
                 SCILLE
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           0.79995
0.50004
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       THE THE TABLE TO THE TOTAL TO THE FLEET
                                                                *******00165401
       TECHATE CH-STIE PS STANDST
                                                                ------00165402
       INITIAL
                                                               ******************
                 441(1-10,10),1
                                         4133134 3.8
       INITIALI
                  441(10,5),1
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       INITIALI
                  441(10,11),15
                                                                *******00165405
       INITIALI
                  441(1,12),10
                                                                ................
                  4194.1
       INITIAL
                                                                INITIALI
                  441(1.15),0
                                                                ...............
       INITIALI
                  4191,3
                                                                ............
       INITIALI
                  K192,5
                                                                ******************
       INITIAL
                  X173,460
                                                                *************
       INTITAL
                  44112,121,35
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		TABLE XXXVI	. Continued	
•		AINT SONCEPT SI .		0014550
	INITIALI	4100,1000		0016550
	INITIALI	X190,20		0016550
	INITIAL	4x1(1,2),30000		0010550
	ENSTEAL	4x1(5,1),30		0016550
	INITIALI	4x1(3,1),35		0016550
	ENTTEAL	441(10,1),20		0016550
	INITIALI	441 (11,1),3		0016550
	INITIALI	4x1(1,6),35		0016530
	INITIALI	4x1(1,0),3		0018550
•	4188134 3	#4 - WT C W 4 W 6 6 . 6 5 W 6 6 5 C	<u> </u>	
	400000	TABORCO (BORNATY I AF	and the state of t	
	PUNCTION	999999 999998 841,32	75006011 ******	520000005340
56.) , 500:		441/36		0015100
	46 4,44	**;		0019110
	-	ATTH & - 144 -444-4-	.RUCKER- LEAD THEI PLEET	0019120
	3 4/2. 000	SITEPAD BTANDAY	**ACCESSO PEND LASIATES	************
•	INITIALI	441(1-10,10),1	SIBBER HCIBELP	
	INITIALI	441(10,5),1	disation states?	************
	ENTTEAL	441(10.11).15		84424401650
	INITIALI	441(1,12),10		0014540
	ENETEALI	X194,1		-2016540
	INITIALI	441(1,15),0		101000
	INITIALI	K191.3		**************************************
	INTTIALI	X108.5		***** ********************************
	INITIALI	X193,400		. At A = +6316#81
	ENITIALI	441(2,12),35	•••	******
	ENTTTALI	X100.30000		2224124
	INITIALI	x190,20		4444
	INITIALI	481(1.2).185		441484
	INITIALI	4X1(2,1),240		0024100
	INITIALI	4x1(3,1),100		00145561
	INITIALI	481(10,1),90		0014650
	INITIALI	481(11,1),20		0016890
	INITIALI	4x1(1,8),100		0016530
	EVETTALI	4X1(1,0),3		00145501
	INSTIALI	x106,3		00108910
	ENETEALI	x195,119		00105911

	TABLE	xxxvII.	HLH	ALTERNATE	MISSION	1
-1 0 VCI88IP						
INITIALI	441 (1	-10.5),1/H4	1(1-10	. 10) . 1	••••••	001030
ivitiali Initiali	441(5	.18).80/4H1	(3,12)	11),10/4H1(1, ,0/4H1(8,18),	,12),10	00103700 0010300
initiali Initiali	X101.		2,14),	5		00103700
INITIAL	K194,	Charles on the				00108701

	TABLE XXXVIII	. HLH ALTERNATE	MISSION 2	
\$00000 \$00000 \$00000000000000000000000		1160000 111 0000111 0000111		0000000023400
INITIALI INITIALI INITIALI	441(1-2,5),1/4 441(1-2,5),1/4 441(1,11),00/4	******	.2	
INITIAL	X194,43	~~!(<i>)</i> /!6///~~~!(0/!6/		00105700

	TABLE	XXXIX.	HLH	ALTERNATE	MISSION	3	

HISSIDN # 3	9/4/6	- HLH -	STANDS				-001035
INTTIAL	441 (1	-10,8),1/	441(10	5.10).4/441(-10.10).5		001036
initiali Initiali	441 ()	-11),70/4 -12),80/4	M1 (2-1 M1 (3.1	2),0/441(8,1	(1,12),10 (),8		001037
1 71 1 1 1 1 1				,21),240			001050

	TABLE XL. HLH ALTERNATE MAINTENANCE CONCEPT	A
10. PUYE' 0.500044		00025100 00025500 00025500
56. PUNC!	7IJN RN1,32 0,00016	00028700 00028860 00103200 00103300
	NGE: CONCEPTO ALTERNATE: A - 100 MR PMP 25 MR PM1 -MLH	
1417; 1417; 1417; 1417;	[AL 4x1(10,1),40/4x1(4,6),30000 [AL 4x1(11,1),40 [AL 4x1(1,0),80/441(1,9),40/4x1(1,10),3	0010400 0010400 0010400
1417; 1417; 1417; 1417;	AL	00105000 00105000 00105000
1 41 1 1 1 41 1 1 1 41 1 1 1 1 1 1 1	AL	00105520 00105531 00105540

HLH ALTERNATE MAINTENANCE CONCEPT B TABLE XLI. SAVPSTHIVECTTOSCENT RACKS.AS STARCEPCONI CT BSCHAFS 00002710 13 VARIABLE: (441+1000+R41)+X195 THITTAL DAYS SINCE PMP 0002800 VARIABLE (P47+(C1/240))0×195 DAYS SINCE PHP 0005000 11 236 VARIABLE #195-#196 HOCKEN RACKSJAS 9P9 00019010 1111111 5500005 140000 25000011 25000000023400 15100000 111111 17 00023500 00010016 220113 00025100 1.0 PUNCTION SCILLE 00028400 0.500050 0.999951 00028500 00028600 . 02028700 00028800 55. SC. IFF PCITSPUT 00103200 50004.0 3. 20003 00103300 00103400 ٠ MAINTINANCE CONCEPT MALTERNATE B - 30 MEEK CALLINAP. 00104310 052701100-----INITIALI 4x1(1,2),220/4x1(2,1),130/4x1(3,1),150/4x1(5,1),6720 00104400 INITIAL 000CE, (4,4) 1x1\05,(1,01)1x1 03104500 INITIALI 481(11,1),3 03104600 INITIAL 4x1(1,8),150/4x1(1,9),5/4x1(1,10),3 00104700 INITIALI X187, 430000 00104900 INITIALI X190,420 03105000 INITIALI 446(16,1-3),1200/4m6(16,4-6),2400/4m6(16,7-10),1200 00105600 INITIAL 446(16,11),503/446(17,1),2157/446(17,2),2121 00105610 INITIAL 146(17,3),2105/446(17,4),2146/446(17,5),2147 05620100 INITIAL 446(17,6),2132/446(17,7),1914/446(17,9),1915 00105630 INITIALI 446(17,9-10),1932/446(17,11),0402 00105640 INITIAL 446(15,1-11),1 00105650 INITIAL X194,4 0310570 INITIAL #195.7 03105710 INITIAL x195,238 00105720 TEST FOR CALENDAR PHP V11, V236, 4R417 C18551C0 TEST L TEST L 411,4536,4F451 00141410 TEST L 411.4530.4FH2 TEST FOR CALENDAR PHP 00163010 MOITSARE ANDRADA TEAL ISSNIE BELT TOL CRES 433134 47.0 00160310 TEST FOR CALENDAR PHP TIST L V11, V236, 48417 00177510 V11. V236, 48417 TEST L 01200610

	TAB	LE XLII.	HLH ALTERN	NATE MAINTE	NANCE CON	CEPT C
1 7 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	999992 99999121 29919611 PUNCTI:	000100	******	20000111	******16	9999999923400 00023500 00023100 00028400
56.	PUNCTI:	SC.148 PC				00028400 00028700 0002800 00103200
) 		, 00002 :E: CINCEPT ·	alternatei & =	P448ED 100 HF	P4P -P087/P	00103300 00103400 00104310 PRE PLBHT0010432
10000	ALTINI ALTINI ALTINI	4x1(10,	1),20/4x1(4,6)			00104500
	initiai Jaitini Jaitini	1 K189,41	000	, 5 /4x1(1,10),1		00104700 00104700 00103000

TABLE XLIII. HLH ALTERNATE MAINTENANCE CONCEPT D BLAVASTMINUCITOSPERI RACKS.AS STARCARCORI CT BSBNAKS 00002710 (RNI+1000+HNI)+KIPS INITIAL: JAYS SINCE PMP (PAT+(C1/240))+KIPS DAYS SINCE PMP 19 VARIABLE 0002800 VARIABLE 0005000 11 VARIABLE: HOCKEN RACKSJAS OFF X195-X196 00017010 530 200000 ***29*8 5500005 75000011 ****** 75000000023400 00023500 15100001 17 20010516 200115 00025100 PUNCTION SCILLE 1. 00028400 0.500044 0.99945 00028500 ٠ 00058000 00028700 00058800 SC. INF MCITONUA 00103200 56. 0,14442 0.50001 00103300 00103400 THITIAL HEI(1,2), 220/4X1(2,1), 100/4X1(3,1), 120/4X1(5,1), 6720 00104310 00104400 INITIALI 4x1(10,1),20/4x1(4,6),30000 00104500 INITIAL 4×1(11,1),3 00104600 441(1,0),120/441(1,4),5/441(1,10),3 INTTIAL 00104700 00104900 INITIAL x159, <30000 INITIAL X190,420 00105000 440(16,1-3),2300/4H6(16,4-6),3000/H46(16,7-10),2000 INTTIALI 00105400 INITIAL 446(16,11),2430/446(17,1),2157/4H6(17,2),2121 00105610 INTTTALI 446(17,3),2105/446(17,4),2106/446(17,5),2147 00105620 446(17,6),2134/446(17,7),1916/446(17,6),1915 INITIALI 00105630 446(17,9),1932/446(17,10),1932/4H6(17,11),0402 INITIAL 00105640 INITIALI 446(15,1-11),3 00105050 X196,7 00105710 INITIALI INITIALI K195,119 00105720 TEST L TEST FOR CALENDAR PHP V11, V236, 48417 00122810 V11, V236, 4LH21 TEST L' TEST FOR CALENDAR PHP 00141410 TEST L 411.4530,4FH2 TEST FOR CALENDAR PHP 00143010 489134 47.0 00160310 TEST TEST FOR CALENDAR PHP 00177510 V11, V236, 48417 TEST L V11, V236, 48417 TEST FOR CALENDAR PHP 00200610

APPENDIX III RESULTS OF COMPARATIVE ANALYSES

Tables XLIV and XLV summarize the results of the CH-47C and HLH maintenance concept comparative analyses. Discussion and analysis of these data are contained in the Comparative Analysis section.

CH-47C

Twenty simulations were run for the CH-47C comparative analysis. These computer runs were typical of all maintenance concept/mission profile combinations.

HLH

Twenty simulations were run for the HLH comparative analysis. These computer runs were representative of all maintenance concept/mission profile combinations.

TLIGHT,	Maintenance Concept		
1.5 HOURS/FLIGHT, SCHEDULED	a	1512 1278 1197.0 1197.0 1197.0 1106.0	-1 (.10) hour PMP)
MTT,	U	1312 1313 1314 1316 1316 1316 130 130 130 130 130 130 130 130 130 130	
TVE ANALYS ON: 16 AT 1512	•	1512 1638 2157.0 568 1139 2 2 2 2 2 35.1 2 35.	.86 (29) . (.15) (100 hour P sed periodic - periodic ion (PMP) r - periodic
CH-47 COMPARATIVE ANALYSES BASIC MISSION: 16 AIRCI	<	1512 16432 2166.0 569 500 1522.5 1532.5 1532.5 16015.9	.96 periodic (PMI), phase calendar -ed inspection // calendar
XEIV. CH-	DASTC.	1512 1345 1345 635 635 636 797.3 797.3 797.3 797.3 646 656 666 666 666 666 666 666 666 666	25 hour PMI), periodic (100 hou inspection (PMI), phased period (PMI), phased period (PMI), phased inspection (PMP) (PMI), daily, calendar - period (PMI), daily, calendar - period
X ALBAT	Output Parameters	1 Total number of missions demanded 2 Total number of missions completed 3 Total number of prefilght inspections 5 Total number of prefilght inspections 6 Total number of Pyl inspections 7 Total number of Pyl inspections 7 Total number of Pyl inspections 8 Total number of Pyl inspections 9 Total number of Pyl inspections 10 Total number of Pyl inspections 11 Total number of Pyl inspections 12 Total number of Pyl inspections 13 Total number of Pyl inspections 14 Total number of Pyl inspections 15 Total number of Pyl inspections 16 Total number of Pyl inspections 17 Total scheduled Pyl 18 Total scheduled Pyl 19 Total scheduled Pyl 10 Total scheduled Pyl 11 Total scheduled Pyl 12 Total number of total of Pyl 13 Total scheduled Pyl 14 Total scheduled Pyl 15 Total scheduled Pyl 16 Total unscheduled Pyl 17 Total scheduled Pyl 18 Total scheduled Pyl 19 No. maintenance actions at prefitable 19 No. maintenance actions at Pyl 20 No. maintenance actions at Pyl 21 No. maintenance actions at Pyl 22 No. maintenance actions at Pyl 23 No. maintenance actions at Pyl 24 No. maintenance actions at Pyl 25 No. maintenance actions at Pyl 26 No. maintenance actions at Pyl 27 Availability	ncepts sily, intermediate (2) irm (daily), 10-hour arnaround/servicing (reflight, postflight

			MISSION 1:	16 AIRC	16 AIRCRAFT, 1.5 HOU	1.5 HOURS/FLIGHT,	7,
Output	put Parameters	EAS IC	4	•	v	۵	Maintenance Concept
- 1							J
7 Total number of	of missions demanded	3920	3920	3920	3920	3920	
		6877	25.5	2393	2002	1713	
Total	r of prefitcht inspections			3337.0	3775	6067	
		414	87.9	977	2 .		
Total			200		9	3561	
		=	3,5	6693	24		
8 Total preflight		0	. 0	יה	27.76	100 E	
9 Total daily Meth	- E-	1996.8	271.2	2140.8	•	0.087	
Total Pel	Ť.	1320.9	2686.25	557.7	1194	5296.0	
Total Pup	5	1485.0	1347.50	234.0	750	630.0	
12 Total unschedul	eduled maintenance actions	4382	4322	9567	4703	3500	
13 Total scheduled	uled maintenance actions	3	2	33	101	116	
Tot al		5845.17	5829.81	6458.52	6316.65	4359.94	
Total	uled YOR	6060.11	5334.66	3459.82	5373.74	8%1.95	
		7766.9	8331.7	9124.3	2614.0	5926.2	
100	nied E.T.	1392.9	2817.9	1620.0	4265.7	6230.0	
16 10tal TH/PH		3.3	3.0	2.7	2.87	20.5	
		9139.8	11149.6	10744.3	7.629	12156.2	
9	ance acretone tofliche above	5	611	621	611	9	
9		2	91	071	121	0	
	actions		,;;	· [1/0	35	
%c.	actions	76.3	2018	2000	640	3.5	
25 No. maintenance	actions.	1011	539	147	`	24.7	
26 No. maintenance	ance actions at PMP	276.1	16.75	164	2773	363	
27 Personnel delays	elavs	1022	6951	1787	66.7	311.9	
28 Malfunctions per	s per Flight Hour	-		7 1		7	
		57.49	48.15	\$0.03	¥.05	43.47	
Index	ex of merit	\$5.	95.	75.	19.	14.	
		1.0.4 - (2/1)	(3.75)	+ (30) - (-15)	1 (18) - 1	(01.)	
Maintenance C	Concepts						
Basic:	>-	hour PMI)	, periodic	(100 hour	PMP)		
	Firm (daily), 10-hour inspection 'PMI), phased periodic (50 hour PMP)	spection	(PMI), phas	ed period	ic (50 hour	r PMP)	
	4	P), daily	, calendar	calendar - periodic (PMP)	(DMD)		
::	Preflight, postflight (F	(PHI), phased	ed inspecti	on (PMP)			

i			MISSION 2:	i I	11 AIRCRAFT, 1.5 HOURS 504 FLIGHTS SCHEDULED	1.5 HOURS/FLIGHT,	HT,
	Output Parameters	IMS IC	4	•	U	A	Maintenance Concept
L.,	number of	204	ž	Š	Ş	S.	
~ (473	683	111	483	24	
_	utilizatio	709.5	726.5	715.5	726.5	£ 3	
	Total number of daily income force	•	2	0 5	210	R	
٠.		7.5	§ 5	3 5	370	3 3	
	o isher	: :	3 =	,	3 5	*	
	prefileht	3 6	2 9	٠ .	217.00	207 6	
•	dativ week	1780.8	105.6	2409.6	3	6.00.9	
2		24.9.9	551.25	111.9	227.4	1464.0	
	\$	0.084	332.50	234.0	105.0	0.04	
	Total unscheduled maintenance actions	1078	853	9%	Ş	151	
13	scheduled	37	22	=	3	3	
_	unschedule	1478.3	1130.57	1342.03	1286.27	1273.03	
_		2881.47	1150.57	3160.0	1343.15	4101.62	
_	unschedule	791.2	859.7	1980.1	1837.8	1416.4	
_		190.7	563.5	201.0	210.8	1120.9	
20	Total M-H/FH	5.83	3.0	6.07	3.5	7.38	
<u>c</u>	WORM delay	961.9	1423.2	2181.1	2048.6	2537.3	
ç		82	21	22	12	2	
7	maintenance actions	28	22	22	21	2	
22	maintenance actions	0	0	0	ĸ	120	
23	No. maintenance actions inflight	31	ĸ	22	27	*	
24	No. maintenance actions during PMI	7	407	272	16	119	
	No. Baintenance actions at daily	135	180	503	0	278	
_	No. maintenance actions at Pup	750	210	*	730	44.2	
27		22.16	199		1582	170	
28	Malfunctions per ight Hour		1 3	7 1	, -	7.	
_		93.35	90.37	85.24	36. ¥	82.83	
	Index of merit	98.	68.	88.	98	ž	
1		1.0.4 = (2/1)	. (.75)	+ (29) - (-15)	1 (18) - ((91)	
	Maintenance Concepts			·		7	
	Daily, intermediate (2 Firm (daily), 10-hour	15 hour PMI)	, periodic (100 hour PMP)	(100 hour	•		
	Turnaround/servicing Preflight, postflight	MP), daily	(PMP), daily, calendar - periodic (PMI), phased inspection (PMP)	- periodi	(Property)		
	Draft icht poetflich		100000000000000000000000000000000000000		(days)		

	SCHEDULED
A	Maintenance Concept
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OUT PRES	
	262 242 243 243 243 253 253 253 253 253 253 253 253 253 25

		BASIC MISSION:		SO4 PLICHTS SC	2.0 HOURS/FLIGHT, SCHEDULED	IGHT,
Output Parameters	MSIC	4		U	۵	Maintenance Concept
	20%	200	Š	\$	\$	
Total number of	767	451	463	687	74.7	
Total utilizatio	į	%	926	976.0	23	
number of	0	0	0	\$65	*	
Total number of	28	412	%	•	787	
Total number of	8	29	472	× ×	683	
Total number of	2	2	~	•	•	
8 Total preflight wen	0	0	0	678.0	548.0	
Total	176.4	2472.00	884.0	•	880.8	
10 Total Pri : Per	880.0	0.494	283 2	× ×	483.0	
11 Total Pro Men	0.007	640.0	300	108.0	220.0	
	787	1751	1266	1000	826	
Total scheduled maintenance act.	C	•	•	}		
Total unschedula	3971.0	9 5 7 7 7	241 7	×23.0	344.4	
Total	7 95 91	1576.0	1667 2	1 1 1 1	3631	
Total unschedul	7	1251 7	2070	1248.0	134:0	
scheduled	1011.9	2.088	1576.8	1425 9	1606.5	
Total PH/FH	5.25	8.43	7.62	7 97		
MORN	2198.3	2112.3	7616.7	26.70	26.7.5	
	12	•	14		13.5	
21 No. maintenance actions inflight abort	71	11	91	: :		
No. maintenance actions	0	0	0	259	231	
23 No. maintenance actions inflight	41	\$	63	X	33	
No. Baintenance actions	470	92,7	£3	286	172	
No. maintenance actions	103	152	265	•	109	
26 No. maintenance actions at PMP	359	567	101	390	566	
27 Personnel delays	1759	2878	1962	1564	1934	
28 Malfunctions per Flight Hour	3.00	1.27	1.37	1.02	87	
	81.85	82.53	70.10	77.91	75.66	
Index of merit	.87	18.	10.	8.	8.	
	1.0. * • (2/1)	1) . (.75) +	8	. (.15) + (18) -1	. (01)	
<pre>HLH Maintenance Concepts Basic: Firm (daily), 10-hour inspect A: Daily intermediate (25 hour</pre>	pection,	inspection, 50 hour phased periodic s hour pwr) periodic (100 hour pwp)	hased peri	odic pare)		
Tur	daily,	daily, calendar periodic (34 weeks	periodic		PMP)	
A THE PARTY OF THE	7		TOTAL MATTER TOTAL	Carra emo		

T,	Maintenance Concept																													
3 AIRCRAFT, 2.0 HOURS/FLIGHT, 560 FLIGHTS SCHEDULED	Α	09	1 8	356	141	347	°	7 25	347.0	•	628	2643.7	1039.4	752.3	209.6	5.27	10.7	2	149	5 65	3 6	•	243	6.	7 8.14	65.	. (.10)		(de	-
CHTS SCHED	v	280	926	339	•	329	• ;	8.0	329.0	72.0	719	3031.4	807.8	896.3	287.6	5.72	7		35	332	•	246	899	1.10	70.63	95:	+ (18) -1	, in	periodic (100 hour PMP) calendar periodic (34 weeks PMP)	urs PMP)
1: 3 AIRCE S60 FLI		980	26.	•	141	370	0 (366.6	222.0	0	807	3273.0	588.6	2.4%	217.7	5.23	4.19	4	• :	245	108	•	247	1.10	71.18	.62	(29) . (.15)	ased perio	(100 hour periodic ((PMI), phased inspection (100 hours PMP)
MISSION	<	260	390	0	115	23	so (069	0.004	512	693	3479.8	1602.0	843.8	333.9	6.31		•	۰;	187	21	407	1818	4 5	70.79	3.	(.75) + (29)	50 hour ph	periodic	d inspecti
	BASIC	260	3 2		112	62	21 °	67.2	620.0	300.0	732	3089.2	987.2	837.5	468.4	3.45	11	12	۰,	352	97	286	iiii	5.5	19.79	65.	1.0.M = (2/1)	spection.	25 hour PMI), (PMI), daily,	(PMI), phase
	Output Parameters	l	jotal number of missions completed Total utilization		number of	number of		Total daily Men			Total unscheduled maintenance actions Total scheduled maintenance actions					NOW Jeller	Total air aborts		maintenance actions	No. maintenance actions intiignt	maintenance actions	actions	Personnel delays	Mairunctions per Filght Hour	Availability	Index of merit		HLH Maintenance Concepts Basic: Firm (daily), 10-hour inspection, 50 hour phased neriodic	Daily, intermediate (2) Turnaround/servicing (C: Preflight, postflight (P)

		MISSION 2:	2:	9 AIRCRAFT, 2.0	2.0 HOURS/FLIGHT	GHT,
Output Parameters	MSIC	4	•	υ	۵	Maintenance Concept
l Total number of missions demanded .	336	336	336	3%	3%	
number of missions completed	332	325	328	326	321	
Total utilizatio	799	8	98.9	652.0	542	
Total number of	°	0 ;	۰;	38	ž.	
A Total number of dally impections	126	į		•	25	
Total number of	3	<u>,</u>	<u> </u>	166	25	
preflight	•	. 0	• •	477.6	ķ	
Total	192.6	2076.0	884.0	0	782.4	
Total PMI	570.0	352.0	202.2	391.0	330.0	
II Total Pro Net	320.0	384.0	8	o. %	220	
Total unschedule	657	687	718	*	673	
Tota1	0	•	0	0	•	
Total unschedul	2710.0	2825.3	2953.8	3286.7	2898.1	
Total scheduled	1062.6	2812.0	1306.2	9.4.6	2226.4	
unschedul	676.3	751.3	2	919.6	630.9	
1/ lotal scheduled 271	4.36.4	2.5	\$21.6	573.5	201.2	
N	11 %		1325.6	1,401	1, 6431	
	7				11	
No. maintenance actions	4	•	•	•	11	
No. maintenance	0	•	•	172	174	
No. maintenance actions	32	2	17	ន	21	
actions	6:	4 2	R	1%		
	2 8	ķ s		· [7 7	
Personnel delace	1361	1716				
	8	1.06	*	1 16	20	
Availability	90.61	92.06	89.04	87.65	86.5	
Index of merit	69.	88.	88.	8	38.	
	1.0.4 = (2/1)	+ (57.) + (1/	(29) . (.15)	1 (18) - ((01.)	
HLM Maintenance Concepts Basic: Firm (daily), 10-hour inspection, 50 hour phased periodic A: Daily, intermediate (25 hour PMI), periodic (100 hour PMP) B: Turnaround/servicing (PMI), daily, calendar periodic (14	spection, hour PMI)	50 hour p , periodic	0 hour phased periodic periodic (100 hour PMP) calendar periodic (14 mests		ê â	
Preflight, postflight	MI), phas	ed inspect	ion (100 h	ours PMP)		
Preflight, postflight	(PMI), CALLY,		calendar periodic (17	(17 WEEKS PRD)	(606)	

	, t 7	Maintenance Concept			
	5.0 HOURS/FLICHT SCHEDULED	۵	1120 445 2225 204 453 453 453 653 653 653 653 653 653 653 653 653 6	66.	· (-10)
	LONT, 5.0	U	11120 445 480 480 481 213 276.0 276.	04.	odic PMP) (34 weeks PMP) cours PMP) (17 weeks PMP)
penu	3: 9 AIRCRAFT, 1120 FLIGHTS		11120 366 1860 125 125 125 125 125 111 111 111 111 1125 125	OK.	hour phased periodic eriodic (100 hour PMP) alendar periodic (34 weeks inspection (100 hours PMP) calendar periodic (17 week)
XLV. Continued	MISSION	<	11120 360 1800 1800 167 61 61 61 61 61 61 61 61 61 61 61 61 61	- 1	J 0 14 U _
TABLE X		PAS IC	1120 421 2105 1159 1193 477 1930.0 940.0 1930.0 1930.0 6765.7 2865.4 2861.0 4260.1 7121.1 6 6 8 6 8 6 6 1 8 8 6 4 1.15	/c.	inspection, 50 (PMI), daily, c (PMI), phased (PMI), daily,
		Output Parameters	1 Total number of missions demanded 2 Total number of missions completed 3 Total utilization 5 Total utilization 6 Total number of perflight inspections 6 Total number of PMI inspections 7 Total number of PMI inspections 7 Total number of PMI inspections 8 Total number of PMI inspections 9 Total number of PMI inspections 10 Total PMI PMM 11 Total PMP PMM 12 Total unscheduled maintenance actions 13 Total unscheduled maintenance actions 14 Total unscheduled PMI 15 Total unscheduled PMI 16 Total unscheduled PMI 17 Total scheduled PMI 18 Total scheduled PMI 19 Norw delay 19 Norw delay 10 Norw delay 10 Norw delay 11 No. maintenance actions at preflight 12 No. maintenance actions at daily 13 No. maintenance actions at pMP 14 No. maintenance actions at PMP 15 No. maintenance actions at PMP 16 No. maintenance actions at PMP 17 Personnel delays 18 Maifunctions per Flight Hour 18 Availability		HLH Maintenance Concepts Basic: Firm (daily), 10-hour inspect A: Daily, intermediate (25 hour B: Turnaround/servicing (PMI), C: Preflight, postflight (PMI), D: Preflight, postflight (PMI),

APPENDIX IV CH-47C R&M INPUT DATA BASE

Tables XLVI through LVI have been employed in the development of the R&M function tables of the CH47C R&M simulation model.

Included in the data presented in this appendix are all primary and non-primary malfunctions, encountered against the various CH-47C components/subsystems, as well as the maintenance actions against each system. Maintenance actions include things like visual checks and walk around safety checks, which are frequently not accounted as maintenance against a component. Furthermore these tasks do not in themselves impart aircraft operations.

The total malfunction rate used in the simulation excluded maintenance actions. Thus malfunctions are generated at a rate of approximately 1.3 per flight hour.

Subsystem Name	WUC	Task Type		Fail Rate 1000 hr	MMH/ Task	Crew	EME	Mission Affecting Rate	NORS
Access panels and doors	0101	On aircraft repair Unsched, removal & replace, Scheduled removal	replace.	3.6300	1.62	1.2			
Armor and armament	0102	On aircraft repair Unsched, removal & replace, Scheduled removal	replace.	2.4200	0.44		0.4		
Basic structure	0103	On aircraft repair Unsched, removal & replace. Scheduled removal	replace.	107.9329	0.90	7.5	2.31	0484.	.
Cargo ramp, door and actuating mechanisms	0104	44	replace.	8.7121	1.51	12.	1.51		
Console and instrument panel	0105		replace.	1.2100	1.70	4.	0.50		
Dynamic absorbers	0106	On aircraft repair Unsched. removal & replace. Scheduled removal	replace.	0.2420	5.08	-	5.08	.2420	.2420
Entrance doors	0107	On aircraft repair Unsched. removal & replace. Scheduled removal	replace.	9.1961	0.81	12.	0.81		.
Fairings and cowling	0108	On aircraft repair Unsched. removal & Scheduled removal	replace.	116.8842	0.59	1.5	1.54	.	.
Plooring	0109	4.4	replace.	7.9861	2.05	- 22	8.6.0	.	.
Hatches	0110	4.0	replace.	2.4200	0.22	9.7	00.7		.
Window assemblies	0111	44	replace.	9.6801	3.19		0.39		.
Work platforms	0112	On aircraft repair Unsched, removal & r Scheduled removal	replace.	33.6383 15.4881	0.82	12:	0.82		.
Maintenance actions	0113	On aircraft repair Unsched. removal & replace.	eplace.	220.4637	0.80	12	0.80		.

A t.	APTE XTA	TABLE XLVII. CH-47C INPUT DATA - COMMUNICATIONS AND NAVIGATION SYSTEM	COMMUNICATIONS	AND NAV	CATION	SYSTEM		
Subsystem Name	MUC	Task Type	Fall Rate 1000 hr	MMH./ Task	Crew	EMT	Mission Affecting Rate	NORS
ADF	0201	On aircraft repair Unsched. removal & replace. Scheduled removal	0.2420	. o . 3 ³	1.3	0.25		,
HF communications	0202	On aircraft repair Unsched. removal Scheduled removal	0.7260	1.43		0.50		
IFF	0203	On aircraft repair Unsched, removal & replace. Scheduled removal	1.2100 ice. 2.1780	0.72	1.2	0.57		•
Interphone	0204	On aircraft repair Unsched. removal & replace. Scheduled removal	4.3561	0.88	2.3	0.88	,	
Liaison	0202	On aircraft repair Unsched. removal & replace. Scheduled removal	1.2100	0.73	4 - 1	0.97		
Marker beacon	0206	On aircraft repair Unsched. removal & replace. Scheduled removal	0.7260 1ce. 0.2420	0.43	2.5	0.42	•	•
OWNI (VOR)	0207	On aircraft repair Unsched. removal & replace. Scheduled removal	.ce. 2.4200	69:0	. ~ .	69.0		
Remote compass	0208	On aircraft repair Unsched, removal & replace. Scheduled removal	0.2420	1.00	1.5	1.09	•	•
UHF communication	0209	On aircraft repair Unrched, removal & replace. Scheduled removal	0.7260	0.67	4	0.67	,	•
VGI	0210	On aircraft repair Unsched, removal & replace. Scheduled removal	. 0.4840	0.98	1.3	0.75	•	
Maintenance actions	0211	On aircraft repair Unsched, removal & replace Scheduled removal	20.3282 7.7441	0.64	2.5	0.64	•	•

		TABLE XLVIII. CH-47C INPUT	CH-47C INPUT DATA - DRIVE SYSTEM	E SYSTE				
Subsystem Name	DOM	Task Type	Fail Pate 1000 hr	Took X	Crew Size	ä	Hission Affecting Rate	NORS Rate
Lubrication	1010	On aircraft repair Unsched. removal & replace. Scheduled removal	3.3080	1.44	- -	1.44	0096.	.2420
Mounts and supports	0302	On aircraft repair Unsched. removal & replace. Scheduled removal	0.9680	0.50	777	0.50	.2420	•
Shafting	0303	On alreraft repair Unsched, removal & replace. Scheduled removal	3.3880 6.5341	0.12	9.4	2.53	0787	
Miscellaneous transmissions	0304	On aircraft repair Unsched, removal 6 replace. Scheduled removal	2.9040 8.4701	1.65		0.53	3.3880	
Maintenance actions	0305	On aircraft repair Unsched. removal & replace. Scheduled removal	35.4105	0.57	~	0.29		
Shaft assembly forward 114D3052-7	0306	On aircraft repair Unsched. removal 6 replace. Scheduled removal	0.2420	6.33	٦	0.33		
Shaft assembly sync	0307	On aircraft repair Unsched. removal 6 replace. Scheduled removal	0.2620	0.50		0.50		
Shaft assembly sync	0308	On aircraft repair Unsched. removal & replace. Schedulad removal	0.2420	1.33	9:11	0.33	•	,
Shaft assembly sync #3 maintenance action	0309	On aircraft repair Unsched. removal & replace. Scheduled removal	0.7260	0.7	~	0.39	,	
Shaft assembly sync	0310	On aircraft repair Unsched. removal 6 replace. Scheduled removal	0.4840	16.0	1.3	, ,	•	,
Shaft assembly aft 114D3070-6 Rotor 08	0311	On aircraft repair Unsched. removal & replace. Scheduled removal	0.9680	3.91	1.9	2.06		1 • 1
Shaft assembly aft 68 maintenance action	0312	On aircraft repair Unsched, removal & replace. Scheduled removal	0.4840	2.97	7 1	1.49	•	
Shaft assembly aft 69 11403070-6 maintenance action	0313	On aircraft repair Unsched. removal 6 replace. Scheduled removal	0.7260	2.97	7	1.49		

		TAPLE XLVIII.	I. Continued	P					
Subsystem Name	MUC	Task Type	Fail Rate 1000	Fail Rate 1000 hr	POSK Task	Crew	142	Mission Affecting Rate	HORS Rate
Shaft transmission 11401241 #8 Maintenance ertion	0314	On aircraft repair Unsched. removal & replace Scheduled removal	•	0.2420	2.25	~ 1 1	1.13	,	•
Shaft transmissic. 114D3241 09	0315	On aircraft repair Unsched. removal 6 replace Scheduled removal		0.2420	1.25	1.9	99.	,	•
Shaft transmission 69 Maintenance action	0316	On aircraft repair Unsched, removal & replace Scheduled removal	1.1	0.2420	9:1	~	1.70	•	,
Shaft, RH engine dis 11403247-1 Maintenance action	0317	On aircraft repair Unached removal & replace Scheduled removal		0.96.0	3.46	~	1.7		,
Shaft assembly, aft rotor 114D3250-1	0316	On aircraft repair Unsched, removal & replace Scheduled removal		0.2420	19.76	1.9	1.9 10.40		
Shaft assembly, aft rotor, 114D3250-1 Maintenance action	0319	On aircraft repair Unsched. removal & replace Scheduled removal		0.7260	0.4	711	0.22	,	
Shaft assembly, aft 11403053-4 rotor	0320	On aircraft repair Unsched. rumoval & replace. Scheduled removal		0.4040	2.15	1.9	, ; ;		,
Shaft assembly, aft 114D3053-4 Maintenance action	0321	On aircraft repair Unsched, removal & replace Scheduled removal		1.2100	0.27	~	0.14		
Adapter splined 11403242-1	0322	On aircraft repair Unsched. removal 6 replace Scheduled removal		0.2420	. % .	1.9	2.63	,	
Adapter splined 114D3242-1 Maintenance action	0323	On aircraft repair Unsched, removal & replace Scheduled removal		0.2420	0.0	7 1 1	90.04	•	
Adapter shaft L/H engine 114D3245-1	0324	On aircraft repair Unsched. removal & replace Scheduled removal		0.2420	0.50	e ()	0.50	•	•
Adapter shaft L/H engine Maintenance action	0325	On aircraft repair Unsched. removal & replace Scheduled removal		0.2420	0.25	2 1 1	0.13	•	
Trans .ssion assembly forward 114D1200-3	0326	On aircraft repair Unached, removal & replace. Scheduled removal		0.96.0	24.65	1.7	1.7 14.62	•	•

		TABLE)	XLV:11.	TABLE XLVIII. Continued					
Subsystem Name	M TC	Task Type		Fail Rate 1000 hr	POGH/ TASE	Crew	r c c c c c c c c c c c c c c c c c c c	Mission Affecting Rate	NORS
Transmission assembly forward 114D1200-3 Maintenance action	6327	On aircraft repair Unsched, removal & rep Scheduled removal	replace.	3.3880	4.58 -	~	2.29	,	,
Transmission, aft	0328	On aircraft repair Unsched. removal & replace. Scheduled removal	lace.	0.4840	48.03	1.7	28.25		•
Transmission, aft 11402200-5 Maintenance action	0329	On aircraft repair Unsched, removal & replace. Scheduled removal	lace.	6.7761	1.10	~	0.55		,
Transmission, comb	0330	On aircraft repair Unsched, removal & rep Scheduled removal	replace	0.9680	15.88	1.7	9.34		
Transmission, comb. 11405200-1 Maintenance action	0331	On aircraft repair Unsched, removal & replace. Scheduled rumoval	olace.	3.1460	0.71	~	0.36		•
Transmission assembly 11406200-1 LH	0332	On alforate repair Unsched. removal & rep Scheduled removal	replace.	1.4520	00	7.1	5.29		
Transmission assembly 0333 11456200-1, IM Maintenance action	0333	On aircraft repair Unsched, removal & rep Scheduled removal	replace.	0.7260	0.27	~	9.14		,
Transmission assembly 11406200-1, PH	0334	On aircraft repair Unsched, removal 6 replace Scheduled removal	: lace	2.9040	6.44	1.7	3.79		
Transm.ssion assembly 0335 114D6100-1, RH Maintenance action	0335	On aircraft repair Unsched, removal & rep Scheduled removal	repiace	0.96.0	0	~ 1 1	0.21		
Transmission assembly 11406200-2, LH Maintenance action	9860	On aircraft repair Unsched, removal & replace. Scheduled removal	lace.	0.0001	2,33	1.7	1.96	1	,
Transmission assembly 114D6206-2, LH Maintenance action	7550	On alreraft repair Unsched, removal & rep Scheduled removal	replace.	2.4200	0.65	771	0.33	•	
Transmission assembly 11406200-2, PH Maintenance action	9338	On alreraft repair Unsched, removal & rep Scheduled removal	replace.	0.0001	3,43	1.7	2.02	ı	
Transmission assembly 0339 11456200-2 Maintenance action	0339	On alroraft repair Unsched, removal & replace Scheduled removal	lace	4.3560	2.25	77.1	1.13		

		TABLE X	TABLE XLVIII. C	Contin. 4d					
Subeystem Name	DOM	Task Type		Fail Rate 1000 hr	YOUH/ Task	Crew	# E	Mission Affecting Rate	NORS
Shaft, quill engine 114D6263-1	0340	On aircraft repair Unsched, removal & replace. Scheduled removal	eplace.	0.4840	39.0	1.7	0.3	,	
Shaft assembly, forward, 114R3052-7 Maintenance action	0341	On aircraft repair Unsched, removal 6 re Scheduled removal	replace.	0.2420	0.30	~	0.15	'	
Shaft assembly, sync 11403048-7 Maintenance action	0342	On aircraft repair Unsched. removal & replace. Scheduled removal	eplace.	0.0001	1.09	1.1	1 1 9	•	,
Shaft assembly, aft 114D3070-6, AB Maintenance action	0343	On alreraft repair Unsched, removal 6 ro Scheduled removal	replace.	0.0001	1.36	1.7	1 1 0	•	
Shaft transmission 11403241 Maintonance action	0344	On aircraft repair Unsched, removal 6 re Scheduled removal	replace.	0.0001	1.28	1:7	2.75		,
Shaft assembly, aft rotor, 11403250-1 Maintenance action	0345	On aircraft repair Unsched, removal & re Scheduled removal	replace.	0.7260	14.43	2.1	7.22	1	,
Adapter assembly, forward drive 114D3067-3	0346	On alroraft repair Unsched, removal & ro Scheduled removal	replace.	0.0001	. , %	1.7	1.67		
Adapter, shaft transmission 114D3243-1	0347	On aircraft repair Unsched, removal & replace. Scheduled removal	eplace.	0.0001	1.70	2	1 . 00.1		
Transmission, forward 114D1200-3 Maintenance action	0348	On aircraft repair Unsched, removal & re Scheduled removal	replace.	0.0001	19.69	1.7	1.7 11.50	•	•
Transmission, aft 114D2200-5 Maintenance action	0349	On aircraft repair Unsched, removal 6 re Scheduled removal	replace.	0.0001	17.92	1.7	1.7 10.54	•	ı
Transmission, comb 114D5200-1 Maintenance action	0320	On aircraft repair Unsched, removal 6 re Scheduled removal	replace.	0.0001	20.32	1.7	1.7 11.95	•	,
Transmission engine 114D6200-2 Maintenance action	0351	On aircraft repair Unsched, removal & replace. Scheduled removal	eplace.	0.7260	1.53	1.7	1.77	•	

	MANA/ Crew Affecting NORS Task Size EMT Rate Rate	1.04 1 1.04 0.80 1.4 0.57	0.29 1 0.29 0.38 1.3 0.29 -	0.28 1 0.28 0.35 1.2 0.29	0.08 1.5 0.05	0.70 1 0.70 0.32 1.5 0.21 .9680 1.4520 0.60 1.5 0.40	0.40 1 0.40 0.44 2.9 0.15	0.64 1 0.64 0.21 1.3 0.16	1.75 1 1.75 0.69 1.4 0.49 -	0.17 1.4 0.12	2.00 1 2.00 1.96 1.3 1.51	1.00 1 1.00	0.58 2 0.29 1.27 2.7 0.472420	0.56 2 0.28 0.50 2 0.25
CH-47C INPUT DATA - ELECTRICAL SYSTEM	Fail Rate 1000 hr	2.6621 4.5980	0.4840	1.2100	0.7260	0.7260 1.6940 0.2420	7.2601	2.1781 6.5340	9.4381	0.2420	0.2420	0.2420	21.2962 6.0500	26.1362
INPUT DATA		replace.	replace.	replace.	replace.	replace.	replace.	replace.	replace.	replace.	replace.	replace.	replace.	replace.
TABLE XLIX. CH-47C	Task Type	On aircraft repair Unsched. removal & Scheduled removal	On aircraft repair Unsched. removal & replace. Scheduled removal	On aircraft repair Unsched, removal 6 Scheduled removal	On aircraft repair Unsched. removal & replace. Scheduled removal	On aircraft repair Unsched. removal & Scheduled removal	On aircraft repair Unsched. removal & Scheduled removal	On aircraft repair Unsched, removal & replace. Scheduled removal	On aircraft repair Unsched, removal 6 Scheduled removal	On aircraft repair Unsched. removal & replace. Scheduled removal	On aircraft repair Unsched. removal 6 Scheduled removal	On aircraft repair Unsched. removal & Scheduled removal	On aircraft repair Unsched. removal & Scheduled removal	On aircraft repair Unsched, removal & replace.
	WUC	0401	0402	0403	0404	0405	0406	0407	0408	0409	0410	0411	0412	0413
	Subsystem Name	AC power supply and distribution	Cabin and ramp lighting	Cockpit lighting	Console lighting	DC power supply and distribution	Formation lights	Inspection lighting	Navigation lights and anti-collision	Overhead panel lighting	Searchlight and landing lights	Troop and passenger warning	Wires, miscellaneous	Maintenance actions

		TABLE L.	CH-47C INPUT DATA - EQUIPMENT SYSTEM	T DATA - E	DUI PKENT	r system	_		
Subsystem Name	эам	Task Type		Fail Rate 1000 hr	YORK/ Task	Grew	153	Mission Affecting Rate	NORS Rate
nav	0501	On aircraft repair Unsched, removal & replace. Scheduled removal	replace.	1.2100 2.6620 0.4840	0.58	2.1.7.1	0.29	.4840	
Cargo rescue hoist	0505	On aircraft repair Unsched, removal & replace. Scheduled removal	replace.	2.6620	0.66	-771	0.66		
Cockpit and cabin seat	0503	On aircraft repair Unsched, removal & replace. Scheduled removal	replace.	4.8401	1.02	-:.	1.02		,
Emergency apparatus	0504	On aircraft repair Unsched, removal & replace. Scheduled removal	replace.	6.2921 5.0820	0.24		0.24		
External cargo hook and towing	0505	On aircraft repair Unsched, removal & replace. Scheduled removal	replace.	2.4200	1.06		1.08	,	
Furnishings	9050	On aircraft repair Unsched, removal & replace. Scheduled removal	replace.	2.4200	0.98	1.2	0.98		,
Heating and Ventilation	0507	On aircraft repair Unsched, removal & replace. Scheduled removal	replace.	3.6300	1.14		0.86	•	,
Windshield wipers and anti-icing	0508	On aircraft repair Unsched. removal & replace. Scheduled removal	replace.	0.2420	0.33	-:.	0.33	•	
Maintenance actions	0509	On aircraft repair Unsched, removal a replace, Scheduled removal	replace.	48.6423	0.65	-41	0.65	ı	•

		TABLE LI. CH-47	C INPUT D	CH-47C INPUT DATA - LANDING GEAR SYSTEM	ING GEAN	SYSTEM			
Subsystem Name	MUC	Task Type		Fail Rate 100C hr	MH/ Task	Crew	ria Dit	Mission Affecting Rate	NORS
Fitting and braces	0601	On aircraft repair Unsched, removal & replace. Scheduled revoval	eplace.	2.6620	0.36		0.36		'
Power steering	0602	On aircraft repair Unsched, removal & replace. Scheduled removal	eplace.	0.2420	0.33	~ 1 1	0.16	,	
Shock struts	0603	On aircraft repair Unsched, removal , replace. Scheduled removal	eplace.	0.2420	2.30	1.9	0.17	,	•
Swivel lock system	0604	On aircraft repair Unsched, removal & ri Scheduled removal	replace.	1.9360	1.56	4	1.56		,
Wheel assemblies	0605	On aircraft repair Unsched, removal & replace. Scheduled removal	eplace.	0.4840	2.84	1.5	0.14	•	
Wheels and parking brake system	9090	On aircraft repair Unsched, removal & replace. Scheduled removal	eplace.	1.210C 4.114	1.13	1.5	0.73		•
Maintenance actions	0607	On aircraft repair Unsched, removal & replace. Scheduled removal	eplace.	24.2002	0.31	- 1 1	0.31	ı	ı

		TABLE LII. CH-47C IN	PUT DATA	CH-47C INPUT DATA - FLIGHT CONTROL SYSTEM	ONTROL	SYSTEM			
Subsystem	MUC	Task Type		Fail Rate 1000 hr	MOU! Task	Crew	r ia	Mission Affecting Rate	NORS Rate
Dungees and dampers	0701	On aircraft repair Unsched, removal & re Scheduled removal	replace.	0.2420	1.04	1.3	, 0	, ·	,
Cockpit controls	0702	On aircraft repair Unsched, removal 6 re Scheduled removal	replace.	0.4840	2.35	4.1	1.68		
First stage mixing	0703	On aircraft repair Unsched, removal & re Scheduled removal	replace.	0.2420	3.39	1.5	2.26	.2420	
Hydraulic boost	0704	On aircraft repair Unsched, removal & re Scheduled removal	replace.	4.5981 15.9721 -	1.49	77.	0.37	•	
Magnetic brake and centering spring	0705	On aircraft repair Unsched, removal & re Scheduled removal	replace.	5.0820	0.59	1.6	0.29	.2420	,
Pedals and positioning system	0706	On aircraft repair Unsched, removal & re Scheduled removal	replace.					•	
Miscellaneous SAS equipment	0707	On aircraft repair Unsched, removal 6 re Scheduled removal	replace.	1.4520	7.92 2.58	1.7	7.92	.242	
Second stage mixing	0708	On aircraft repair Unsched, removal & re Scheduled removal	replace.	1.4520	6.02	1.1	6.02		
Transfer cables	0109	In aircraft repair Unsched, removal 6 re Scheduled removal	replace.	0.4420	2.25 1.58 17.50		2.25 1.13 12.50	1	,
Trim and stick position	0110	On aircraft repair Unsched, removal & re Scheduled removal	replace.	0.9680	3.50	1.5	1.00	. 4840	,
Maintenance actions	0711	On aircraft repair Unsched, removal & re Scheduled removal	replace.	236.1938	0.37	~~ 1	0.19	,	
SAS •1	0712	On aircraft repair Unsched, removal 6 re Scheduled removal	replace.	0.2420	1.04	1.7	0.08	ı	,
SAS 01 Maintenance action	0713	On aircraft repair Unsched, removal 6 re Scheduled removal	replace.	5.5660	1.16	771	0.58	,	,

		TABLE	TABLE LII. Continued	penut					
Subsystem	DQ.	Task Type		Fail Rate 1000 hr	MMH/ Task	Crew	EMT	Mission Affecting M Rate Ra	NORS Rate
SAS 12	0714	0714 On aircraft repair Unsched, removal & replace. Scheduled removal	replace.	0.2420 6.75	6.75	٠ ، ١	6.75	•	•
SAS 02 Maintenance action	0715	0715 On aircraft repair Unsched, removal & replace. Scheduled removal	replace.	4.5980 0.92	2.00	771	1.00		

		TABLE LIII. CH-47C INPUT DATA - HYDRAULIC SYSTEM	DATA - HYDR	WULIC S	YSTEM			1,	
Subsystem Name	MUC	Task Type	Fail Rate 1000 hr	MMH/ Task	Crew	EMT	Mission Affecting Rate	NORS Rate	
Utility	0801	0801 On aircraft repair Unsched, removal & replace. Scheduled removal	3.8721 0.87 29.7662 1.04	1.04	1.6	1.6 0.65	.7260		
Maintenance Actions	0802	0802 On aircraft repair Unsched, removal & replace.	45.7383 0.51 0.2420 1.00	1.00	221	0.25			

Subsystem Name	WUC	Task Type		Fail Rate 1000 hr	MMH/ Task	Crew	FW3	Mission Affecting Rate	NORS
Blades	1060	On aircraft repair Unsched, removal & replace. Scheduled removal	replace.	1.6941 1.6941 0.7261	0.80	1.6	0.40	2.6620	
Controls	0905	On aircraft repair Unsched, removal & Scheduled removal	replace.	1.4520 10.8901 0.2420	2.35	1.6	1.47	0896.	.2420
Damper	0903	On aircraft repair Unsched, removal s Scheduled removal	replace.	2.1780	3.36	1.6	2.10	.4840	
Hub assembly	0904	On aircraft repair Unsched. removal & replace. Scheduled removal	replace.	2.4200 10.4061 1.2100	1.54	1.7	1.54 0.67 2.38	.4840	.2420
Rainshield and boots	5060	On aircraft repair Unsched, removal & Scheduled removal	replace.	2.1780	1.87	1.8	1.04		
Maintenance actions	9060	On aircraft repair Unsched, removal 6 Scheduled removal	replace.	116.6448	2.06	~~.	1.03		
Blade, forward 114R1502-25	0907	On aircraft repair Unsched. removal & replace. Scheduled removal	replace.	1.6940 8.2280 3.3880	2.22	1.6	0.37 1.39 1.26		
Blade, forward Maintenance actions	8060	On aircraft repair Unsched, removal & Scheduled removal	replace.	0.4840	2.67	1.6	0.59		
Blade, aft 114R1502-26	6060	On aircraft repair Unsched, removal 6 Scheduled removal	replace.	3.3880	0.50	1.6	0.25 1.23 1.33		
Blade, forward 114R1502-25 Maintenance action	0160	On aircraft repair Unsched. removal & replace. Scheduled removal	replace.	42.5923	1.09	221	0.55	1	
Blade, forward 114R1502-33 Maintenance action	0911	On aircraft repair Unsched, removal 6 Scheduled removal	replace.	2.4200	1.75	771	0.34		
Blade, aft 114R1502-26 Maintenance action	0912	On aircraft repair Unsched, removal & Scheduled removal	replace.	27.3463	1.16	221	0.58		
Blade, aft 114R1502-34	0913	On aircraft repair Unsched, removal & replace.	replace.	0.4840	1.34	~ .	0.67		

Subsystem Name	MUC	Task Type		Fail Rate 1000 hr	MMH/ Task	Crew	EMT	Mission Affecting Rate	NORS
Controllable swashplate (aft) 114R3505-12	0914	On aircraft repair Unsched, removal & replace. Scheduled removal	eplace.	0.4840	6.60	141	09.1		
Controllable swashplate (forward)	0915	On aircraft repair Unsched, removal & replace. Scheduled removal	eplace.	0.9680	8.34		8		
Controllable swash- plate (aft), mainte- nance action 114R3505-12	0916	On aircraft repair Unsched, removal & replace. Scheduled removal	eplace.	0.1210	0.08		0.08		
Swashplate (aft) 114R3505-12 Maintenance action	0917	On aircraft repair Unsched, removal & replace. Scheduled removal	eplace.	0.1210	0.08		0.08		
Rotary wing (assembly) forward	0918	On aircraft repair Unsched. removal & replace. Scheduled removal	eplace.	0.9680	13.51	1 70 70	6.76		•
Rotary wing assembly, maintenance action	0919	On aircraft repair Unsched, removal & replace. Scheduled removal	eplace.	0.1210	0.50	-11	0.50		
Rotary wing assembly, maintenance action	0920	On aircraft repair Unsched, removal & Scheduled removal	replace.	0.2420	0.50		0.50		
Rotary wing assembly, aft	0921	On aircraft repair Unsched, removal & replace. Scheduled removal	eplace.	0.2420	3.83	1 77 7	4.50	,	
Rotary wing assembly, aft Maintenance action	0922	On aircraft repair Unsched, removal & replace. Scheduled removal	replace.	0.2420	2.00		2.00	•	
Rotary wing assembly, aft maintenance action	0923	On aircraft repair Unsched, removal & replace. Scheduled removal	replace.	0.2420	2.00		2.00		•

		TABLE LV. CH-4:	CH-47C INPUT DATA - INDICATING SYSTEM	TA - INDIC	ATING S	YSTEM			
S LOSYSten Name	MUC	Task Type		Fail Rate 1000 hr	MMH/ Task	Crew	EMT	Mission Affecting Rate	NORS Rate
APU indicator	1001	On aircraft repair Unschod, removal a Scheduled removal	replace.	1 1 1				•	•
Chip detector	1002	On aircraft repair Unsched, removal & Scheduled removal	replace.	3.8721	0.45	 1	0.45	•	1
Basic flight instruments	1003	On aircraft repair Unsched, removal 6 Scheduled removal	replace.	1.4520	0.27		0.27		.2420
Drive system lubrication	1004	On alreraft repair Unsched, removal & Scheduled removal	replace.	0.9681 5.8080	0.97	1.4	0.97	•	
Engine fire detection	1005	On aircraft repair Unsched, removal & Scheduled removal	replace.	1.4522	1.09	1.3	1.09	.2420	•
Hydraulic pressure	1006	On aircraft repair Unsched, removal & Scheduled removal	replace.	0.2420	0.20	1.6	0.10	•	ı
Master caution indicating	1007	On allcraft repair Unsched, removal & Scheduled removal	replace.	0.2420	0.80	1 T 1	1.00		
Powerplant fuel	1008	On aircraft repair Unsched, removal & Scheduled removal	replace.	1.2100	0.91		0.56		1
Powerplant lubrication	1009	On aircraft repair Unsched, removal 6 Scheduled removal	replace.	0.9681	1.02	1.3	1.02		•
Powerplant performance	1010	On aircraft repair Unsched, removal & Scheduled removal	replace.	1.4520 8.9541 9.7260	1.77	1.4	0.77	. 7260	.2420
Rotor tachometer	1011	On aircraft repair Unsched, removal & Scheduled removal	replace.	1.6940	0.83	1.5	0.83	•	1
Maintenance actions	1012	On aircraft repair Unsched, removal & Scheduled removal	replace.	57.8384	0.49	77.	0.25	•	•

		TABLE LVI. CH-47C I	NPUT DATA	CH-47C INPUT DATA - POWERPLANT SYSTEM	NT SYSTI	3			
Subsystem Same	MC	Task Type		Fail Rate 1000 hr	MMK/ Task	Crew	哲	Mission Affecting Rate	NORS
Anti-leing and deficing	1011	On aircraft repair Unsched, removal & Scheduled removal	r 6 replace.	7.7440	0.61	1.3	0.61	•	,
installation basic engine	1102	On aircraft repair Unsched, removal & Scheduled removal	replace.	2.1780	1.49 1.74 0.38	2.0	1.16	9.9221	0 + 8 + 0
Controls	1103	On alleraft repair Unsched, removal & replace. Scheduled removal	replace.	7.3880 30.6063 5.5660	0.81	200	0.81	1.2160	0181
Cowling and nacelles	1104	On aircraft repair Unsched, removal a Scheduled removal	replace.	84.9427	1.02	9.71	1.02	*	
Exhaust	1105	On aircraft repair Unsched, removal & replace, Scheduled removal	replace.	8.2281	0.74		0.74	4	,
Fire	1106	On aircraft repair Unsched, removal & Scheduled removal	replace.	1.4520	0.46	1.1	0.35	•	
Fuel	1107	On aircraft repair Unsched, removal a Scheduled removal	replace.	10.8901	0.87	2 - 1	0.87	2.9040	,
Ignition	1108	On aircraft repair Unsched, removal 6 Scheduled removal	replace.	3.8720	0.19	1.9	0.39	.2420	1
Lubrication	1109	On aircraft repair Unsched, removal a Scheduled removal	replace.	2.1780	1.79	1.3	0.62	2.9040	
Mounts and support	1110	On aircraft repair Unsched, removal & Scheduled removal	replace.	6.5341	1.29		1.29	1.4520	,
Starting	1111	On aircraft repair Unschid, removal a Scheduled removal	replace.	0.4840	0.67	1. 1. 4.	0.47	0787	
Maintenance action	1112	On aircraft repair Unsched, removal & Scheduled removal	replace.	293.3062	1.63	~~ 1	0.61	1	
ink engine	1113	On aircraft repair Unsched, removal a replace. Scheduled removal	replace.	1.2100	13.68	1.5	3.90	•	

		TABLE: LVI. Continued	Continued					
Subsystem Name	XDC	Task Type	Fail Rate 1000 hr	MMH/ Task	Crew	t v a	Mission Affecting Rate	NORS Rate
LH engine maintenance action	1114	<pre>1114 On aircraft repair Unsched, removal & replace. Scheduled removal</pre>	10.1641	3.98	771	0.49	•	
PH engine	Stee	On aircraft repair Unsched, removal & replace, Scheduled removal	0.2420	3.75	1.5	3.75	,	
PM engine maintenance action	1116	On aircraft repair Unsched, removal & replace, Scheduled removal	12.0681	14.92	~ ~ .	7.45	,	·
RH engine maintenance actions	1117	On aircraft repair Unsched, removal & replace. Scheduled removal	1.0000	0.97	~ 1	0.49	•	

APPENDIX V HLH R&M INPUT DATA BASE

Tables LVII through LV have been employed in the development of the HLH R&M simulation model functions tables.

Included in this appendix are the various inspection and servicing tasks against the rotor, flight controls, drive, and cargo handling systems. These items are not malfunctions. As such the total malfunction rate used for the HLH simulation is approximately 1.05 occurrences per flight hour.

Subsystem		MUC	Task Type	Fallure Fate/ 1000 hr	MMH/ Task	Crew	EMT	Mission Affecting Rate/ 1000 hrs
Fuselage	904	0101	On aircraft repair Unsched, removal & replace, Scheduled removal	314.0	1.0	2	0.5	0.475
	101	0102	On aircraft repair Unsched, removal & replace, Scheduled removal	35.0	39.0	\$	7.8	•
Macelles	106	0201	On alreraft repair Unsched, removal & replace. Scheduled removal	23.4	1.0	C4	0.5	0.530
	10.	0202	On aircraft repair Unsched, removal & replace, Scheduled removal	2.6	70.0	s	0.4	1
Landing qear	• 06	0301	On alloraft repair Unsched, removal & replace. Scheduled removal	61.2	1.0	2	5.0	0.172
	101	0302	On aircraft repair Unsched, removal & replace, Scheduled removal	98	26.0	50	5.2	•
Powerplant	0.6	1010	On aircraft repair Unsched, removal & replace, Scheduled removal	40.5	1.0	~	0.5	1.920
	100	0405	On aircraft repair Unsched, removal & replace. Scheduled removal	÷.5	58.0	2	11.6	
Powerplant controls	105	0501	On aircraft repair Unsched, removal & replace. Scheduled removal	53.1	0.1	2	5.0	0.530
	104	0502	On aircraft repair Unsched, removal & replace. Scheduled removal	6.9	18.0	-	`\$. †	
Pue 1	•06	0601	On aircraft repair Unsched, removal & replace, Scheduled removal	19.8	1.0	2	0.5	0.091
	101	0602	On aircraft repair Unsched, removal & replace.	2.2	48.0	9	0.0	1

Subayatem				TABLE LVII. Cor	Continued				
101 0702 00 alternative pair 0.5 1.0 2 0.5 102 0702 00 alternative pair 0.5 45.0 5 9.0 103 0702 00 alternative pair 0.5 45.0 5 9.0 104 0802 070 alternative pair 0.5 0.5 105 0803 0.6 alternative pair 0.6 0.6 0.6 106 0803 0.6 alternative pair 0.6 0.6 0.6 107 0803 0.6 alternative pair 0.6 0.6 0.6 108 0.6 alternative pair 0.6 0.6 0.6 109 0.6 alternative pair 0.6 0.6 0.6 100 0.6 alternative pair 0.6 0.6 0.6 100 0.6 alternative pair 0.6 0.6 0.6 100 0.6 alternative pair 0.6 0.6 0.7 100 0.6 alternative pair 0.6 0.7 0.6 100 0.6 alternative pair 0.6 0.7 0.7 100 0.6 alternative pair 0	Subsystem Name		MUC	Task Type	Failure Rate/ 1000 hr	MMH/ Task	Crew	EMT	Mission Affecting Rate/ 1000 hrs
10.0 0.002 0.0 alterrate repair 14.4 1.0 2 0.5		• 0	0701	aircraft repair sched, removal 6 neduled removal		1.0	7	0.5	0.636
101 0.801 On alteraft repair 14.4 1.0 2 0.5	-	10	0702	1		10	5	0.6	
101 0802 Unatcraft repair 1.6 10.8 3 3.6 Scheduled removal replace 36.9 0.4 1 0.4 Scheduled removal replace 36.9 0.4 1 0.4 Scheduled removal replace 4.1 0.4 1 0.4 Scheduled removal replace 65.7 1.0 2 0.5 Scheduled removal replace 65.7 1.0 2 0.5 Scheduled removal replace 65.7 1.0 2 0.5 Scheduled removal replace 7.3 15.0 3 5.0 Scheduled removal replace 5.4 0.3 1 0.3 Scheduled removal removal replace 5.4 0.3 5.2 Scheduled removal replace 5.4 0.3 5.2 Scheduled removal replace 5.4 0.3 5.2 Scheduled removal removal replace 5.5 5.5 Scheduled removal removal replace 5.5 5.5 Scheduled removal replace 5.5 5.5 Scheduled removal replace 5.5 5.5 Scheduled removal replace 5.5 5.5 Scheduled removal replace 5.5 5.5 Scheduled removal repla	93	•	0801		14.4	1.0	7		ن. 002
10t 0901 On aircraft repair 10t 0902 On aircraft replace. 10t 0902 On aircraft repair 10t 0902 On aircraft repair 10t 0902 On aircraft repair 10t 1001 On aircraft repair 10t 1002 On aircraft repair 10t 1001 On aircraft repair 10t 1002 On aircraft repair 10t 1001 On aircraft repair 10t -	• 01	0802		1.6	10.8	3	3.6	•	
10		• 00	1060		36.9	•.0	-	•••	00.00
101 0n aircraft repair 103 15.0 3 5.0 103 1002 0n aircraft repair 104 1002 0n aircraft repair 104 1102 0n aircraft repair 108 1103 0n aircraft repair 1201 0n aircraft repair 1201 0n aircraft repair 1201 0n aircraft repair 1202 0n aircraft repair 1203 100 2 0.5 100 1202 0n aircraft repair 1203 100 2 0.5 100 1202 0n aircraft repair 1203 0n aircraft repair 1204 0n aircraft repair 1205 0n aircraft removal 1205	-	• 01	0902		4.1	9.0	11	••0	1
100 1002		• 00	1001		65.7	1.0	2	0.5	0.384
1101	-	101	1002		7.3	15.0	•	5.0	1
10% 1102 On aircraft repair Unsched, removal & replace. Scheduled removal 1201 On aircraft repair Unsched, removal & replace. 10% 1202 On aircraft repair Cheduled removal Scheduled removal & replace. Scheduled removal & replace.		• 00	1101		5.4	0.3	-		0.000
1201 On aircraft repair Unsched. removal & replace. Scheduled removal 101 1202 On aircraft repair Chaduled removal & replace. Scheduled removal	-	• 01	1102		9.0	0.3	4	e. 0	1
1202 On aircraft repair Unsched, removal & replace. Scheduled removal	Prince and one of principal and the principal an	00	1201		1.8	1.0	2	0.5	0.000
	•		1202		0.2	26.0	s	5.2	•

		TABLE LVII. Con	Continued				
Subaystem Name	MUC	Task Type	Failure Rate/ 1000 hr	MOH/ Task	Creek	H2	Mission Affecting Rate/ 1000 hrs
Pneumatic power 90%	1301	On aircraft repair Unsched. removal & replace. Scheduled removal	22.5	1.0	~	0.5	0.001
101	1302	On aircraft repair Unsched, removal & replace. Scheduled removal	2.5	20.0	\$	0.4	•
Hydraulic power (utility) 900	1401	On aircraft repair Unsched. removal & replace. Scheduled removal	31.5	1.0	~	0.5	0.573
101	1402	On aircraft repair Unsched, removal & replace. Scheduled removal	3.5	16.4	-	:	1
Electrical power 90%	1501	On aircraft repair Unsched, removal & replace. Scheduled removal	32.4	1.0	2	0.5	0.144
100	1502	On aircraft repair Unsched, removal & replace. Scheduled removal	3.6	16.0	-	0.4	
Accommodations/ furnishings 90%	1601	On aircraft repair Unsched, removal & replace. Scheduled removal	17.1	1.0	~	0.5	0.000
100	1602	On aircraft repair Unsched. removal & replace. Scheduled removal	1.9	33.0	5	9.9	•
Environmental/ control 90%	1701	On aircraft repair Unsched, removal & replace. Scheduled removal	12.6	1.0	~	0.5	0.020
100	1702	On aircraft repair Unsched, removal & replace, Scheduled removal	7:	51.0		8.5	•
Flight controls 900	1801	On aircraft repair Unsched, removal & replace. Scheduled removal	67.4	1.0	7	0.5	0.190
104	1802	On aircraft repair Unsched, removal & replace. Scheduled removal	7.5	37.0	5	7.4	•

		TABLE LVIII. HIM INPUT DATA - NOTOR SYSTEM	- NOTOR S	гэтен			
Subsystem Name	WUC	Tesk Type	Failure Rate/ 1000 hr	MMH/ Task	Crew Sire	t a	Mission Affecting Rate/ 1000 hrs
Hub and upper controls (fault isolation)	1061	On alteraft repair	5.333	0.5000	-	5.0	
Forward rotor blades (inspection)	1902	On aircraft repair	100.0	0.0904	~	0.5148	1
Forward rotor blades (inspection)	1903	On aircraft repair	3.3	2.6754	~	2.2737	
Notor blade (troubleshoot failure detection system)	1904	Unsched, removel & replace.	9.2742	1.4040	٦	1.4040	
Forward rotor blades (removal and replacement)	1905	Unsched, removal & replace.	1.3946	5.7720	s	2.1645	0.3265
Forward rotor blades (track)	1906	On altoraft repair	3.1982	1.5015	•	1.4235	1
Forward and aft rotor blades (check track)	1907	On alroraft repair	31.4754	0.2730	~	0.3705	1
Forward rotor blades (removal and replace- ment tiedown fitting)	1908	Unsched, removel & replace.	0.0053	0.8970	.	0.7995	
Aft rotor blades (inspection)	1909	On aircraft repair	100.0	3.3384	m	1.2948	1
Aft rotor bludes (inspection)	1910	On aircraft repair	3.3	5.2260	~	2.6910	
Aft rotor blades (track)	1161	On alreraft repair	3.1982	1.7745	m	1.6965	
Aft rotor blades (removal and replace- ment tiedown fittings)	1912	Unsched, removal & replace.	0.0053	1.7940	3	1.4235	•

Subsystem Name	MUC	Tas	Task Type	Failure Rate/ 10000 hr	MM/ Task	Crew	t a	Affecting Rate/ 1000 hrs
Aft rotor blade (removal & replacement)	1913	Unsched, removel	removal & replace.	1.3946	6.4545	~	2.4570	0.3265
Hub assembly (inspection)	1914	On aircraf	aircraft repair	3.333	0.8970	-	0.8970	
Hub assembly (removal & replacement)	1915	Unsched.	removal & replace.	0.4477	20.0655	s	11.0292	0.3713
Hub assembly (rem & repl pitch housing/cross beam assembly)	1916	Unsched.	removal & replace.	10.731	6.5130	-	2.6715	1
<pre>Hub assembly (replace bearing elastomeric)</pre>	1917	Unsched, removel	removal & replace.	5.319	1.7355	6	0.9165	1
Hub assembly (rem & repl centrifugal stop assembly)	1918	Unsched.	removal & replace.	0.0387	0.9360	-	0.5655	
Hub assembly (replacement shear bearing)	1919	Unsched, 1	removal & replace.	2.236	1.4040	e e	0.8190	
Hub assembly (:em & repl pitch housing assembly)	1920	Unsched.	removal & replace.	0.4183	0.9360	m	0.5655	•
Hub assembly (replace cross beam)	1921	Unsched.	removal & replace.	0.0362	1.8720	6	1.0530	•
Hub assembly (service damper assembly)	1922	On aircraf	aircraft repair	3.2	0.8970	2	0.4875	•
Hub assembly (inspection of damper assembly	1923	On aircraft	trepair	3.333	0.0780	-	0.0780	
Hub assembly (rem & repl. damper assembly)	1924	Unsched.	removel & replace.	7.0	2.1645	e	1.0725	0.1168
Hub assembly (repair, repl.	1925	On aircraf	aircraft repair	0.9018	0.9945	n	0.6240	•

		TABL	TABLE LVIII.	Continued	1 1		ı	
Subaystem Name	MUC	Task Type		Fallure Rate/ 1000 hr	MON/ Task	Crew	TH2	Mission Affecting Rate/
Hub assembly (repl. outboard bearing)	1926	Unsched, removal & replace.	place.	. 9018	2.0670	5	1.1310	1
Mub & upper controls (inspection)	1927	On alroraft repair		100.0	0.8424	-	0.8424	
Upper controls (inspection)	1928	On aircraft repair		3.333	0.6942	~	0.6942	•
Upper controls (removal & repl. pitch link)	1929	Unsched, removel 5 rep	s replace.	3.6072	1.2480	•	0.7995	•
Upper controls pitch link (replace bearings)	1930	Unsched, removal & replace.	place.	7.2144	0.2457	~	0.2457	
Upper controls (grease swash- plate bearings)	1631	Unsched, removal & replace.	place.	3, 333	1.9110	~	1.1505	
Upper controls (removal 6 repl. swashplate assembly)	1932	Unsched, removal & re	6 replace.	1.6328	24.5115	s	12.0042	
Upper controls (repl. bearing condition sensor)	1933	Unsched, removal & re	& replace.		0.4290	-	0.4290	
Upper controls (removil & replace, scissors arm)	1934	Unsched, removal & replace.	place.	0.0750	6.5325	3	3.9195	•

Subsystem Name WUC Cargo handling 2001 (inspect)						
	Task Type	Pailure Rate/ 1000 hr	Task	Crew	5	Mission Affecting Rate/ 1000 hrs
	On aircraft repair	100.0	0.4797	-	0.4797	•
Cargo handling 2002 (inspect)	On aircraft repair	3.3	9066.0	-	0.9906	
Hoist drive 2003 assembly (service-oil)	On aircraft repair	5.584	0.2535	-	0.2535	•
Hoist drive 2004 assembly (removal and replacement)	Unsched, removel & replace.	1.9570	1.1895	~	0.9555	0.1370
Brake assembly 2005 (removal and replacement)	Unsched, removal & replace.	0.1390	1.8330	7	1.5210	•
Control valve unit 2006 (R&R modified valve)	Unsched, removel & replace.	0.7500	0.5460	٦	0.5460	1
Control valve unit 2007 (R&R shutoff valve)	Unsched, removal & replace.	0.4000	0.5460		0.5460	•
Tach generator 2008 (removal and replacement)	Unsched, removal & replace.	0.1650	0.7800	-	0.7800	
Winch assembly 2009 (clean)	On aircraft repair	20.0	0.4875	-	0.4875	•
Winch assembly 2010 (removal and replacement)	Unsched, removal & replace,	0.670	2.1840	~	1.170	•
Winch assembly (tear 2011 down/build up quick change package)	On aircraft repair	0.798	4.6800	r	2.5155	•
Winch assembly 2012 (service bevel gearboxes)	On aircraft repair	4.8	0.5070	1	0.5070	•
Winch assembly 2013 (service-grease ball spline)	On aircraft repair	1.1	0.7605	1	0.7605	ı

		TABLE LIX.		Continued				
Subsystem Name	WUC	Task Type		Failure Rate/ 1000 hr	MMH/ Task	Crew	EMT	Mission Affecting Rate/ 1000 hrs
Winch assembly (remove, inspect chip detector)	2014	On aircraft repair		1.280	0.4680	-	0.4680	ī
Winch assembly (R&R drum traversing wheels)	2015	Unsched, removal 6.1	6 replace.	0.1000	1.0530	1	1.0530	•
Winch assembly (repl bevel gearbox oil seals)	2016	Unsched, removal & replace.	replace.	0.4400	5.8695	3	3.1395	•
Winch assembly (repl side load beam wear strips)	2017	Unsched, removal & 1	& replace.	0.450	2.3010	2	1.8330	
Cable cutter assembly 2018 (rem & repl cable cutter)	2018	Unsched, removal & replace	replace.	0.278	1.9110	ſ	1.0140	ı
Cable cutter assembly 2019 (sched repl of cartridge/ignitors)	2019	Scheduled removel		0.278	0.7488	7	0.5070	
Tension member (rem & repl tension members)	2020	Unsched, removel & replace	replace.	00 00	1.9560	7	1.1700	0.023
Signal reel assembly (rem & repl signal reel assembly)	2021	Unsched, removel &	£ replace.	0.3613	1.0725	~	0.6435	0.010
Signal reel assembly (replace signal conductor)	2022	Unsched, removal & replace	replace.	0.150	1.2090		1.2090	-
Signal reel assembly (repl ribbon tape cartridge)	2023	Unsched, removal & replace.	replace.	0.050	1.0725	~	1.0725	•
Signal reel assembly (rem & repl preumatic valve)	2024	Unsched, removal 6	replace.	0.3360	0.5070	-	0.5070	
Coupling assembly (clean)	2025	On aircraft repair		50.0	0.4680	-	0.4680	•
Coupling assembly (rem & repl	2026	Unsched, removel 6	6 replace.	0.9100	0.3510	2	0.2925	0.024

		TABLE LIZ. Cont	Continued				
Subsystem Name	MUC	Task Tyne	Failure Rate/ 1000 hr	Mag:	Cree	E	Mission Affecting Rate/ 1000 hz
Coupling assembly (rem & repl solenoid assembly)	2027	Unsched, removal & replace.	0.128	1.4004	-	1.4040	•
Coupling assembly (repl 6 adjust switch(es))	2028	Unsched, removal & replace.	0.528	1.3065	-4	1.3045	
Control panel (removal and replacement)	2029	Unsched, removal & replace.	0.50	0.2535	-	0.2535	0.100
Control panel (repair - replace switch)	2030	Unsched, removal & replace.	0.50	0.2340	-	0.2340	
Indicators (rem & repl an indicator)	2031	Unached, removal & replace,	2.5	0.2535	→	0.2535	4
Hoist control grip (replace faulty switch)	2032	Unsched, removel & replace.	1.0	0.4290	-	0.4290	1
Support a span positioning (rem a repl cable/pulley)	2033	Unsched, removal & replace.	0.008	0.6825		0.6825	1
Support & span positionging (rem & repair, repl articu- lated pncu duct)	2034	Unsched, removal & replace.	0.825	0.7605	-	0.7005	.
Support 6 span positioning sys (repair, repl hinged track section)	2035	On aircraft repair	0.005	1.3065	~	0.8385	
Actuator/yearbox (removal and replacement)	2036	Unached, removal & replace.	0.058	9.7410	-	0.7410	ı
Position lock actuator (removal sreplacement)	2037	Unsched, removal & replace.	0.0172	6.7419	7	0.7020	•
Load isolator (recharge nitrogen chamber)	2038	On aircraft repair	7.2	0.4485		0.4485	
Load isolatur (removal and replacement)	2039	Unsched, removel & replace.	2.000	1.1700	•	0.8190	1

Subsystem Name	₽,CC	1 -	Task Type			Fallure Rate/ 1000 hr	MMH/ Task	Crew	£.	Mission Affecting Pate/ 1000 hr
Visual augmenta- tion system (inspect)	2040	On airc-af' repair	f repair	L.		100.0	0.0195	-	0.0195	,
Camera & lens assembly (clean lens cover)	2041	On aircraft repair	ft repai	L.		80.0	0.1560	~	0.1560	•
Camera & lens assembly (repl VAS camera unit)	2042	Unsched, removal & replace.	removal	k repl		0.001	1.0335	m	0.8970	•
Camera lens assembly (repl lens assembly)	2043	Unsched, removal & replace.	remova]	6 repl	900	0.001	2.0475	E	1.6575	
VAS display unit (removal and replacement)	107	Unsched, removal & replace.	removal	6 repl	ace.	00.00	0.3510	-	0.3510	1

sion 2101 On aircraft repairement at a creen						
2101 On aircraft repaid to aircraft repaid to aircraft rep		Failure Rate/ 1000 hr	MDCH/ Task	Crew	t i	Affecting Rate/ 1000 hr
2102 On aircraft repaid to a aircraft repaid to a aircraft repaid to a aircraft repaid to a aircraft repaid to a aircraft repaid to a aircraft repaid to a aircraft repaid to a aircraft repaid to a aircraft repaid to a aircraft repaid to a aircraft repaid to a aircraft repaid to a aircraft repaid to a aircraft repaid to a aircraft repaid to a aircraft repaid to a aircraft repaid to a aircraft repaid to aircraf	Om aircraft	0.126	0.5070	-	0.5070	•
2103 On aircraft repaid to a aircraft repaid to a aircraft repaid to a aircraft repaid to a aircraft repaid to a aircraft repaid to a aircraft repaid to a aircraft repaid to a aircraft repaid to a aircraft repaid to a aircraft repaid to a aircraft repaid to a aircraft repaid to a aircraft repaid to a aircraft repaid to a aircraft repaid to aircraft repa	S	0.128	0.5070	-	0.5070	
2105 On aircraft repaid the control of contr	8	99.0	0.5265	-	0.5265	•
2105 On aircraft repair 2106 Unsched. removal 2107 Unsched. removal 2109 Unsched. removal 2110 Unsched. removal 2111 Unsched. removal 2112 Unsched. removal	On aircraft	100.0	0.1170	-	0.1170	
2106 Unsched. removel 2107 Unsched. removel 2109 Unsched. removel 2110 Unsched. removel 2111 Unsched. removel	8	3.3	0.1950	-	0.1950	
2107 Unsched. removel 2108 Unsched. removel 2109 Unsched. removel 2110 Unsched. removel 2111 Unsched. removel	2106 Unsched, removel & replace.	0.472	38.9961	2	29.4762	0.395
2108 Uhached. removal 2109 Uhached. removal 2110 Uhached. removal 2111 Uhached. removal 2112 Uhached. removal	Unsched.	0.378	0.1560	~	0.1170	,
2109 Unsched removal 2110 Unsched removal 2111 Unsched removal	ļ	0.357	0.4485	-	0.4485	
2110 Unsched. removal 2111 Unsched. removal 2112 Unached. removal	Unsched.	0.632	5.0115	-	3.3735	
2111 Unsched, removel 2112 Unsched, removel	Unsched.	0.196	2.3790	-	1.5600	•
2112 Unsched. removel		0.011	0.5265	~	0.5265	•
replacement)	Unsched.	0.035	0.8385	-	0.8385	
Main lube pump 2113 Unsched, removal & (rem & repl pump filter)	2113 Unsched, removel & replace.	0.164	0.6435	1	0.6435	

			1 28	TABLE LX. CONE	Continued				
Subaystem Name	MUC	T.	Task Type		Failure Pate/ 1000 hr	MOU/ Task	Crew Size	ra tra	Mission Affecting Rate/ 1000 hr
Aft xmsn accessory assembly (replace accessory seals)	2114	Unsched.	Unsched, removel &	6 replace.	2.877	2.6520	~	2.1450	,
Combining xmsn (clean indicating screen (primary))	2115	On mircri	On aircraft repair		99.0	0.5070	-	0.5070	
Combining xmsn (clean indicating screen secondary)	2116	On aircra	On aircraft repair		99.0	0.5070	~	0.5070	•
Combining xmsn (inspection)	2117	On Aircri	On aircraft repair		100.0	0.1170	-	0.1170	
Combining xmsn (inspection)	2118	On aircra	On aircraft repair		3.3	0.6630	1	0.6630	
Combining somen (rem build-up and replace out the top)	2119	Unsched.	Unsched, removal & replace.	replace.	0.342	20.0460	-	9.7110	0.385
Combining xmsn (rem build-up and replace out the back)	2120	Unsched.	Unsched, removal & replace.	replace.	0.342	28.3140	_	15.1320	
Combining xmsn (rem build-up and replace thru floor)	2121	Unsched.	Unsched, removel 6	£ replace.	0.342	16.3800	_	9.2430	
Combining xmsn (rem & repl temp probe)	2122	Unsched.	Unsched, removal 6	4 replace.	0.378	0.1560	~	0.1170	
Combining xmsn (rem & repl press xducer-primary)	2123	Unschod.	Unsched. removal & replace.	replace.	0.357	0.2925	-	0.2925	
Combining zmsn oil cooler (rem 6 repl)	2124	Unsched.	Unsched, removal & replace.	replace.	0.632	4.4655	_	2.6325	•
Combining xmsn (rem 6 repl fan-(oil cooled))	2125	Unsched. removel		6 replace.	0.196	1.5990	-	1.4040	'
Combining xmsn (rem & repl clutch assembly)	2126	Sheched.	Unsched, removal & replace	replace.	0.200	3.5880	.	2.1283	

		TABLE LX. Cont.	Continued				
Subsystem	MUC	Task Type	Failure Rate/ 1000 hr	NOCH/ Task	Crew	EME	Mission Affecting Rate/ 1000 hr
Combining when (rem & repl filter element (primary))	2127	Unached, removal & replace.	0.115	0.5655	~	0.5265	
Combining zensn (rem 6 repl oil pump (primary))	2128	Unsched, removal & replace.	0.047	3.1005	~	1.7355	
Combining xmsn (rem & repl rotor brake)	2129	Unsched, removel & replace,	1.6760	2.6910	•	1.7940	0.041
Combining xmsn (rem & repl rotor brake disc)	2130	Unsched, removel & replace,	0.068	4.3485		2.5333	•
<pre>01 & 02 shafting 6 couplings - R/H Engine (inspection)</pre>	2131	On aircraft repair	100.0	0.1053	-	0.1053	•
Engine shafting (inspection)	2132	On aircraft repair	100.0	0.2613		0.2613	0.162
#1 shaft to LH engine (inspection)	2133	On aircraft repair	100.0	0.1560	-	0.1560	
<pre># 2 engine shaft ## assembly replace</pre>	2134	Unached, removal & replace.	0.512	2.5896	~	1.4040	•
Engine shafting (inspection)	2135	On aircraft repair	3.3	0.4134	-	0.4134	
el 6 62 shafting 6 coupling - R/H Engine (inspection)	2136	On aircraft repair	3.3	0.2262	H	0.2262	
el 6 62 shafting 6 coupling - L/H Engine (inspection)	2137	On aircraft repair	3.3	0.2262	-	0.2262	•
#1 shaft to R/H Engine (inspection)	2138	On aircraft repair	3.3	0.1872	-	6.1872	ð
el shaft to L/H Engine (inspection)	2139	On aircraft repair	3.3	0.1872	-	0.1872	

			TABLE LX. Conti	Continued				
Subsystem Name	DD.M	T an	Task Type	Failure Rate/ 1000 hr	Task Task	Crew Size	E	Mission Affecting Rate/ 1000 hr
Sync shaft bearings forward xmsn to comb (lube)	2140	On aircraft repair	repair	3.3	0.2262	-	0.2262	•
Sync shaft bearings comb to aft rotor (lube)	2141	On aircraft repair	repair	3.3	0.0468		0.0468	•
Engine shafting bearings, left, right, center engines (lube)	2142	On aircraft repair	repair	3.3	0.1404	-4	0.1404	
Sync shafting forward xmsn to comb xmsn (inspection)	2143	On aircraft repair	repair	100.0	0.3822	-	0.3822	0.123
Sync shafting comb xmsn to aft rotor xmsn (inspec)	2144	On aircraft repair	repair	100.0	0.1248	-	0.1248	0.123
Sync shafting forward aman to combamen (inspection)	2145	On aircraft repair	repair	3.3	0.7830	-	0.7800	•
Sync shafting comb xmsn to aft rotor xmsn (inspec)	1246	On aircraft repair	repair	3.3	0.2886	-	0.2886	•
Slant shaft No. 11 (rem & repl)	2147	Unsched, re	Unsched, removal & replace.	0.1951	3.8415	-	2.0865	•
Slant shaft No. 10 (rem & repl)	2148	Unsched, removel	movel & replace.	0.1951	5.3430	e l	2.8275	,
Sync shaft bearings (removal and replacement)	2149	Unsched, removel	movel & replace.	0.782	2.1283	~	1.9305	1
Sync shaft mount (removal and replacement)	2150	Unsched, re	Unsched, removal & replace.	2.660	0.7020	~	0.5070	0.131
Drive shafting (burnish out nicks, gouges, scratches)	2151	On aircraft repair	repair	4.053	0.7800	~	0.8580	,
Forward xmsn (clean main indicating screen)	2152	On sircraft repair	repair	0.128	0.5070	-	0.5070	-

		TABLE LX. CO	Continued				
Subayatem	JQ.	Task Type	Failure Rate/ 1000 hr	Task X	Crew Size	5	Mission Affecting Rate/ 1000 hr
Forward xmsn (clean secondary indicating screen)	2153	On aircraft repair	0.128	0.5070	-	0.5070	'
Chip detector (examine and clean)	2154	On aircraft repair	99.0	0.5265	~	0.5265	•
Forward xmsn (inspection)	2155	On aircraft repair	100.0	0.1170	-	0.1170	
Forward xmsn (inspection)	2156	On aircraft repair	3.3	0.1950	-	0.1950	
Forward xmsn (rem build-up, replace)	2157	Unached, removal & replace.	0.472	38.9961	~	29.4762	0.395
Forward xmsn (rem & repl temp probe)	2158	Unsched, removal & replace.	0.378	0.1560	7	0.1170	•
Press transducer (probe) primary (rem 6 repl)	2159	Unsched, removal & replace.	0.357	0.4485	-	0.4485	
Oil cooler (rem 6 repl)	2160	Unsched, removal & replace.	0.632	5.0115	a	3.3735	
Blower (oil cooler) (rem & repl)	2161	Unsched, removel & replace.	0.196	2.3790		4.5600	
Auxiliary lube pump (rem & repl)	2162	Unsched, removel & replace.	0.011	0.5265	~	0.5265	
Main lube pump (rem 6 repl)	2163	Unsched, removal & replace.	0.035	0.8385	-	0.8385	
Main lube pump (rem & repl pump filter)	2164	Unsched, removal & replace.	0.164	0.6435	-	0.6435	•
Forward xman accessory assy (repl accessory seals)	2165	Unsched, removal & replace.	2.877	2.6520	~	2.1450	

APPENDIX VI DOCUMENTATION OF MODIFICATIONS TO GOVERNMENT-FURNISHED SIMULATION MODEL

The following changes have been made to the Government-furnished simulation model:

- In modifying the model to accommodate a platoon size of up to 24 aircraft, several reallocations of resources were made. The reallocation of Blocks (BLO) and Fullword Save Values (FSV) should not constrain any future runs or minor model changes.
- If it is desired to keep the model core requirements at a minimum, a reallocation of Transactions (XAC) to 400 and Common (COM) to 175,000 will support up to 11 aircraft in most maintenance concepts and mission profiles.
- If execution error 599 (limits of core exceeded) is encountered, increase the total core request for the job step by 50,000 bytes.
- If execution error 468 or 469 (number of transactions exceeded) is encountered, increase the reallocation of transactions (XAC) by 100, Common (COM) by 50,000, and the total core request for the job step by 50,000 bytes.
- 2 It is advised that for early applications of the model (debugging) a delimiter be used in column 19 of the simulate card. A value of 6 was used in most analyses, which limited the simulation to 6 CPU minutes.
- 3 The UNLIST card was added to the original model to suppress model listing.
- 4 Variable 9 has been generalized with respect to run duration.
- 5 Variable 10 generalizes the calendar PMP inspection to be a function of input X195 (the calendar inspection interval) rather than a constant in the variable definition.
- 6 Variable 11 is a modified variable used in the the tests for calendar PMP. It is generalized to be a function of input X195. Parameter 47 (P47) contains the initial time since last calendar PMP for the aircraft. Subsequent to induction of an aircraft into the PMP routine, the P47 value is reset to zero.

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424923 JA42 ZP3E9900
                                   PEALLOCATE BLD, 1950
PEALLOCATE BTD, 90
PEALLOCATE BTD, 90
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33
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7 Floating point variable (Fvariable) 146 has been modified due to the increased number of aircraft the model now encompassess. If it is desired to operate the model "on condition", use a dummy input as follows:

Initial MH6 (26, 1-24), K30000

8 Variable 147 has been generalized to make it a function of the input parameter save value X189 (the PMP interval). This variable is employed in the model's PMP logic test. It was felt that the model should be suitable for changes in PMP intervals without logic change. Thus, this variable was defined to make the PMP logic test functionally dependent upon an input rather than logically dependent upon a constant, as was previously the case.

9 Variable 148 was generalized in the same manner as variable 147. Variable 148 is employed in the PMI logic tests within the model. Again, it was felt that all PMI logic should be generalized to be a function of input parameters, rather than allowing logic to be dependent functionally upon a constant within the coding of the model.

10 Variable 150 has been modified, due to the increase in model size to accommodate a platoon size of 24 aircraft.

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                            #325+#375+#825+#875 BAVEVALUE SUMMATTON
193
                                                                                                                         00014700
          SJEATERY
190
                            PIRHITS SAVEVALUE NO-STAJLATION-SCHEDULED MAIS BY AC GOOLBROO
          STRAIPAY
                            PIGATS SAVEVALUE NO-ADMITHEN-SCHEDILED HAIS BY ACFT
195
                                                                                                                         03014900
196
          VARIABLE
                            -14+1200
                                             SAVEVALUE NO-SIA ELAPSED JURCH MAINT ACFT
                                                                                                                         00015000
                            PINASO SAVEVALUE NO-MINITUR ELAPSED UNSCH MAINT A/C 00015100
PS-1125 SAVEVALUE NO-MINITURE DATE DATE SCHED MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT MAINT M
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          SIFFIFAN
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1 90
          VARIABLE
                            P14+1150
          VARIABLE
1 71
                            220-055
                                            COL X CPLCH NAM
                                                                                                                         12015500
          VASTABLE
                                             SAVEVALUE NO-SITULATION DIR MAINT MM SY ACFTOTO15600
1 77
                            P14+1225
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1 73
          VARIABLE
                            4625.06
170
          VARIABLE
                            41250+P14
175
          VARIABLE
                            CAN 1.) BALL MACH ATALACH ON BATANTA COSON
                                                                                                                         00015900
```

- Variables 206 through 211 have been modified to provide new save value numbers for test hop flight hours, aborted flights, and aborted hours. This change was made necessary by modifying the model to handle 24 aircraft.
- 12 Floating point variables 214 and 215 have been modified to use the new save value numbers for aborted and test hop flight hours in the maintenance man-hour per flight-hour calculation and platoon flight time summation, respectively.
- 13 Floating point variable 216 has been modified to make the availability dependent upon input definition of the run duration, rather than functionally dependent upon a constant within the variable.

This has been accomplished by incorporating MX1 (5,1) (run duration) in the variable statement in place of the original value of 6720. Furthermore, this variable has been modified to handle NORS time by inclusion of X*3.

- 14 Floating point variable 217 has also been modified to generalize the availability for the platoon with respect to the number of aircraft per platoon and the run duration of the simulation, by use of X191 and MX1(5,1), respectively. Also, this variable required modification to allow for the accountability of NORS downtime which was previously not considered in the baseline UH-1 Government-furnished model. The NORS delays are administered by inclusion of X1425 in the variable definition.
- 15 Floating point variable 220 has been modified to employ the new save value number for platoon-aborted flight hours in the availability calculation.
- Variable 231 has been defined to generate a six-digit random number module X189, which is the PMP interval. This variable is employed in routine ZZB of the model, to initialize the P40 value that is representative of the initial airframe values of each aircraft. This variable provides generality in that the modulization based on X189, which is an input parameter, enables the airframes to be initialized with values ranging from 1/10 of an hour to 99,999.9 hours. If the situation were ever to arise that a PMP interval of greater than 100,000 hours was desired, this variable would require redefinition.
- Variable 232 has been established to define save values for the accounting of NORS per aircraft. Pl4 keeps track of the tail number of each aircraft and, with the constant K 1400 added to it, ensures save values in the range from 1401 to 1424 for NORS accounting.



- Variable 234 has been defined to generalize the interaction between PMP interval, defined by input X189, and the mission duration, defined through function table 4. variable established a window, so to speak, through which a PMP inspection can be activated. For example, if X189, the PMP interval, is 100 hours and the value chosen from function table 4 is 2 hours, as a mission length, the value of V234 is 98 hours. This variable is then employed in the logic to test if the time on the aircraft is greater than or equal to 98 hours, yet less than 100 hours. If this is the case, the aircraft requires and, therefore, receives a PMP inspection. The original logic of the model employed constants in these tests, which meant that the model functionally and logically was dependent upon the PMP interval and mission length of the UK-1 Thus, this area was modified to provide generality aircraft. to help accomplish the required comparative analysis.
- 19 Variable 235 has been defined to perform a function similar to that of variable 234, except that variable 235 is employed to define the window through which the PMI inspection logic is accessible.
- 20 Variable 236 defines a window by which the calendar PMP logic is activated.
- 21 Variable 237 generates a -720 for use in the checks for daily maintenance whenever 3 nonflying days in a row are encountered.
- Variable 239 tabulates the time since last daily inspection.
- 23 Variable 240 established save values to count the number of dailies.
- 24 Variable 241 establishes save values for tabulating missions completed.
- 25 Boolean variable (BVARIABLE) 17 has been generalized through the use of input X194 the number of ready aircraft required to hold maintenance personnel overtime rather than a constant in the variable definition.
- 26 Boolean variable 19 is a new variable which has been defined to preclude maintenance being performed during off-shift hours.
- 27 Boolean variable 20 has been added to ensure that only flying aircraft get dailies (except when 72 nonflying hours expire).

```
32841844
                                                                     X199-FV4
                                                                                                                   SENERAL
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             ۱,
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                                   STEFFERN
           12
                                                                      #195-#196
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                                   J.BATSAV
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                                  SVARTABLE
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                                  HATRIE
                                                                        4.10.22
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                                  TIPTAP
                                                                                                                                                                                                                                                                     00020200
                                  HATRIY
                                                                       4,45.9
                                                                                                                                                                                                                                                                     00020300
                                 MISTAP
                                                                       4, 25, 0
                                                                                                                                                                                                                                                                     00020400
```

28 Matrix 6 has been expanded to handle up to 24 aircraft and 24 TBO items.

29 Function table 2 has been modified by inclusion of Event 8 - PMI probability of success.

```
23-v
                       4,28,24
            STRIN
                                                                                   00020500
            TATRIE
                       E.15.13
                                                                                   00020400
            STORY
                       x,15,27
                                                                                   01020760
            MISTAP
                       1.12.11
                                                                                   00000000
            STRIB
                                                                                   0002000
                       1,7,20
            44797X
     5
                       E. 45. 9
                                                                                   00021000
           TABLE
                       *17.1.1.27
                                      NUMBER THEFTCTTONS PERFORMED
                                                                                  01021100
                       29,0,1,11
                                      PLISHIS SY HISSIDH TYPE
           TABLE
                                                                                  00415000
           TASE
                       017,1,1,27
     3
                                      NUMBER THREETING
                                                                                  02021300
           TARLE
                       219,1,1,27
                                      CBRBYCOPIC NOBE VE ELAP
    .
                                                                                  02021400
           TARLE
                       23.0.1.45
                                      +31616 AG 6194
    5
                                                                                  01021500
           TABLE
                       217,1,1,27
                                      WA'S BY SYSTEM & MHEN DISCOVERED
    .
                                                                                  00015000
           TARLE
                       **** . 1 . 300
    7
                                                                                  01021700
           TABLE
                       WITH JAKETTASTPACE 251,05,05,050
                                                                                  01021800
           749LE
                       MCITURISTRIC BALTUNCC 055.05.05.06.004
    .
                                                                                  01021900
           TARLE
                       PN86.3,1,301
                                      N799 EVENTS
    1 3
                                                                                  00022000
           TABLE
                       P445.3.1.500
                                      CANNIBALTEED PARTS
    11
                                                                                  00125000
           TARLE
                       P486.0,1,300
                                      PARTS CAJETY TO SECULE ENTREAD STEAM
    15
                                                                                  00055500
           TARLE
                       PV45.0.1,300
                                      PARTS R AND R SY SERVICE PLATION
    15
                                                                                  070>2300
           TARLE
                                          WITH POR OFF AIRCRAFT PART REPAIR
    13
                       v55,1,20,125
                                                                                  00022400
           TARLE
    15
                       FN45.3.1.301
                                                                                  01022500
           3779425
                       955-952,800
                                                                                  2242600
                                                                                  01022700
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           PUNCTION
                                    RECOMPISURATION SORT
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                      .3,34
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3
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                      017,78
                                          BROUND EVENT P(SUCCESS)
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           PUNETION
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                      09,72
                                    PROS OF NO 46 DURING PLICAT
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           PUNCTION
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                                    MISSION DURATION
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   0
              1
                      15
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   ٠
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           PUNCTION
    5
                      99,39
                                    PROF NO ASTREZA DURING FLIGHT
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   ٠
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          PUNCTION
                      917,72
    •
                                   MCITARUDE, ECH, PSHCANE BONANZANIAM BAIL
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   2
          10010015
                      200124
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          PUNCTION
    7
                      P17,79
                                    MAINTENANCE PRIDRITY
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   1
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    9
           PUNCTION
                      917,72
                                   STENS CHICKE TIMIT SUBJUS EVENTS
                                                                                 00025000
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                                                                                  20050100
```

29 Function 9. This sorting function has been modified by the addition of the event number 8 and its subsequent functional value of FN56. The inclusion of this change to the function table enables the model to detect multiple maintenance actions at the intermediate inspection through function table 56.

29 Function table 15. This is a sorting function that has been modified by the addition of element number 8 and its function value FM57. Function 57 is the table defined which provides the probability of maintenance by various systems, given a maintenance action at the intermediate inspection.

```
00024260
         PUNETION
                    P10, 20
                                    MMEN DISCOVERED SORT MULTI-FATLURES ONOROSOO
                              PV10 7 PV10 8 PV56 12 PV11 01026400
        FV11 5
                    P413 6
   16
                              PNS1
                                                                      00024500
   00020600
                                                                      999700
         PUNCTION RVI. DE
   13
                              THOTH SPIRIC APVAR THUP ECFM
                                                                      00056800
                       0.49983
   0.91001
              0.94042
                                    0.9994
                                                                      00026900
                                                                      01027000
   97027100
        PUNCTION RN1.75
                              PROS MULT MANMA DURING PREFLIGHT
                                                                      01027200
   0.29951
                        0.00003
              5,79972
                                                                      01027300
                                                                      0007400
                                                                      00027500
        PINCTION PNITON
   1.5
                                    PEMULT MANMA & DATLYS
                                                                      01027400
  0.10002 0.30003 0.50004
                                   0.70005 0.90006
                                                         0.99997
                                                                      00027700
                                                                      00027900
                                                                      00027900
        SC. IVE VCITSVUE
                             PROS MULT MAZMA SURTHS ATREMEN
                                                                      01025000
  0.0001
            0.79902
                                                                      00162000
                                                                      00029200
                                                                      00777500
   14. PUNCTION RVI.05
                             POMJER MAZMADOMO
                                                                      00029400
  0.100047 3.250057 0.500067 0.700077 0.999957
                                                                      01029500
                                                                      00029600
                                                                      00025700
29-15
        PUNCTION
                   917.58
                                   AMEN STACOVERED SORT SYSTEM PAILURE ONOPSHOO
        FV10 5
                   FV15 5
                             F417 7
                                         FV19 8 FV57 12 FV19 00028900
                   15 N.
  16
                                                                     01029100
                                                                     00029100
                                                                     00029200
        PUCCTION AVI.511
                             PROP SYSTEM NA ATROPENINA ATROPEN
   1 6
                                                                     02029300
  0.284101
            0.205612 0.392505 0.401003
                                             0.439005 0.455106
                                                                     01029400
  0.566107
              0.595505
                                   0.752119
                        0.703107
                                               0.999911
                                                                     0029500
   17 PUNCTION 841.011
                             PROS SYSTEM NA IN-FLIGHT/NA IN-FLIGHT
                                                                     00029400
                       0.302513
  0.244101
              0.265602
                                               0.439005
                                   0.401003
                                                         0.455106
                                                                     00029700
        PUNCTION PAINT PARTS
                                   0.752211
  0.545107
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                             DOPPSOON THEM I TRANTHOLIGHT TREE AM MATERE ECE
  0.314201 0.021301 0.049705 0.056903
                                             0.071003
                                                        0.170303
                                                                     00030000
  0.199704
              0.205904
                        2.220005
                                   0.227107
                                               0.234207
                                                         0.241307
                                                                     00030100
  0.25507
                        3.35453
                                   0.353207
              7.276509
                                              0.397404
                                                          0.411609
                                                                     00030200
             0.440010
                        0.730911
  0.818710
                                   0.766311
                                             0.851311
                                                         0.858411
                                                                     00202000
                        0.999911
  0.743511
             9. 986111
                                                                     02030200
   19 FUNCTION ANIANI PROP SYSTEM NO PREFLIGHT/MA PREFLIGHT
                                                                     00030500
  0.244101
             0.205602 0.302503
                                               0.419004
                                   0.401201
                                                        0.455106
                                                                     00030600
   1.546107 0.595308 0.
20 Punction 401,711
  0.366107
                        0.703107
                                   0.752210
                                              0.999911
                                                                     00000700
                           PADS SYSTEM OF DATEMEN ECFE
                                                                     00030800
  0.240741 0.503602 0.393005 0.429304 0.500105 0.500006
0.507407 0.654208 0.750207 0.664213 0.799911
                                                                     00070000
             0.654208
                                   0.684919
                        0.750207
                                               0.999911
                                                                     00031000
   PUTCETAN ANIATE PADS SYSTEM OF PERIODIC ...
                                                                     00031100
  0.533401 0.363002 0.429505 0.444504 0.473904 0.510306
                                                                     00011200
```

29 Function table 23. Again, this is a sorting function that has been modified by the addition of element number 8 and its function value FN 29. Function 29 provides the probability of any element of a system being detected as a failed item in a system, given a maintenance action in this system. Due to the paucity of data on the CH-47C and HLH at the elemental level, this function table is the same as the function table employed at the periodic inspection. If data on another aircraft was of such a quantity that a distinction could be drawn between the elemental probability of occurrence between the intermediate inspection and periodic inspection, it would be suggested that function table 23 be modified to use a function value of FN58 for element number 8 and a new function table 58 be defined of a form similar to that of function table 29. This would give the elemental probability of occurrence at the intermediate inspection, given a system maintenance action at the intermediate inspection.

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07	27	0.9	04	0.9	4 2	10	23	11	34			99031600
	•	•				•	• •	• -	•-			01031700
												00031800
23-23	Pilul	PETTON	P17,6	A		MHEN	31900	VERED	9387 F	FMFNT	PATLUR	00031900
Q.''	P427	5	F424		PV25	7	P424		FYZT	12	FYZT	00032000
î.	P424	17	F454	•		•	••••	No.		• •		00032100
	- 16.7	• •										00035500
												00032300
	# J. 14	PETT	FV86.	10C1	2273	ELEME	44 TH	ATRCRE	H/44 9	-		00032400
0131	210	7101	005	5010	024	0102	001	0103	162	0103	046	00032500
0177	113	0104	004	0103	955	0105	051	0106	011	0106	005	00032600
0137	314	0107	205	2109	175	0108	172	0109	012	0100	001	00032700
0117	108	0112	002	0111	014	0111	212	0112	050	0112	053	00032500
0115	330	0113	007	1050	004	5050	012	0205	992	0203	150	00032900
0532	037	0204	274	2704	058	0205	021	0205	050	0206	012	00033000
0236	224	1237	941	205	034	9050	012	0200	012	0209	091	00033100
0217	009	0211	344	1150	132	0301	013	0301	056	0302	603	00033200
5080	840	0302	003	2303	013	0303	0.25	0303	001	0304	011	00033300
0334	032	2305	203	3300	031	0307	021	0305	001	0308	001	00033400
0320	003	0310	205	0311	003	0312	500	0313	003	0314	001	00033500
0315	001	1315	001	0317	003	0318	991	0310	063	0320	200	00033600
0321	005	0355	201	2323	021	0524	021	0325	011	0324	003	00033700
0327	013	6359	200	0329	025	0330	003	0331	012	0332	003	00033400
0333	023	0334	013	2335	023	0336	000	0337	011	0337	001	00033900
0339	220	0139	550	0339	632	0340	909	0341	001	0342	000	00034000
0343	000	1504	200	2345	050	0345	000	0346	000	0347	200	09034100
0328	000		000	6350	020	0351	0 2 3	0351	003	0401	025	00034200
0001	044	3205	305	0402	039	0403	915	0403	0 4 4	0404	007	00034300
0035	007	6405	016	3405	035	0406	059	0406	31A	0407	021	00034400
0137	540	0 . 0 9	207	3445	470	0409	995	0809	014	0410	200	00074500
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0501	012	0501	075	0501	035	0502	0 > 7	0502	016	0503	046	00014700
0503	025	0500	350	0504	049	0505	023	0505	095	0504	053	00034800
0506	019	0507	035	0507	050	0508	002	0508	0>3	0509	467	00034400
0529	016	0601	060	1001	017	5000	996	0603	011	0603	006	00035000
0534	544	3500	077	0505	011	0605	079	0606	750	0606	093	12035100
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0739	035	0709	215	2709	031	0709	012	0709	001	0710	003	00035400
0710	150	0711	779	0711	003	0712	001	0712	972	0713	018	00035500
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9932	574	090>	003	3901	005	0901	095	0901	902	5000	005	03035790
0932	037	0005	0 1 1	2903	937	0903	070	0904	990	0408	0 3 5	00035900
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0.00	115	0 1 1 2	143	0915	014	0911	009	0911	20.0	0912	045	00036100
0912	027	0 1 3	005	0914	005	0915	004	0916	004	0917	001	00562000
0919	534	0919	308	2919	034	0920	011	0921	0.01	0921	001	00016100

0455	2 2 2	1957	103	1005	U \$ 4.	1002	りつう	1003	311	1001	031	ひっしょぎゅうさ
1734	117	1739	203	1205	011	1005	1 4 4	1005	205	1004	005	03035503
1177	444	1777	117	1 104	419	1004	353	1009	017	1000	049	07035400
1010	111	1 7 1 7	147	171 /	175	1011	115	1011	079	1015	431	33034703
1312	033	1121	211	1101	010	1105	073	1102	016	1102	001	0.1035807
1134	211	1103	145	1105	114	1104	125	1104	797	1105	012	01015901
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1112	051	1112	131	1113	035	1113	217	1114	115	1110	001	01047200
1115	111	1115	303	1116	151	1116	011	1117	320			01037300
52		111V		· F 5 3 1	2571			THEFLIG.		442 14	_	01017400
0131	010	2121	775	1105	034	0105	231	0108	145	0103	049	01037501
0122	013	3133	238	7.05	315	2105	221	0106	7 7 1	0106	005	00037400
0177	214	1137	205	2104	175	010	1,5	3109	012	0100	001	41417711
0117	034	2112	305	1111	110	0111	217	1112	350	0112	053	22037403
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0536	934	1217	761	3500	000	1204	015	0509	212	0700	160	01014:01
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0332	132	1815	212	7 3 1 1	221	7 1 7 A	111	030E	221	2304	001	00035400
0337	115	-	111	- •	115	0314	112	3313	213	0314	001	11014501
0313	17!	0315	221	0 51 7 1323	_	0324	221	7319	200	0324 0324	002	01049401
0331	115		•	1763	221		111	0325	011			33035703
0327	113	1324	225	1555	125	1331	223	7331 7337	112	0337	003	01035501
0333	130	7863	122	1349	125	5340	213	0.397	311	0342	011	0 10 2 2 2 0 C 1
		0384	303	7345	1 2 1	281.5	211	0346		2347	912	01039101
0333	110	2343	300	1350	2.20	3151	525	0351	311	0401	125	01019201
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0411	227	0305	115	1205	0.55	0405	143	0406	018	2407	150	01039401
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0521	112	2521	124	1501	0.25	0502	727	0502	014	2503	046	01049700
0335	129	1574	251	1504	119	0505	123	0505	035	0504	n 23	22023402
0334	019	3537	155	1507	924	2509	215	0505	223	0509	467	02089902
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0724	035	0709	215	2707	221	0709	312	0709	341	0710	003	61141411
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0932	374	1402	075	2931	135	0701	335	0901	210	090>	005	22042702
0712	037	2005	3 7 1	1908	027	0903	277	0904	318	0904	035	01020400
0932	114	1705	207	1705	126	1905	526	0905	314	0907	006	01010901
0777	128	0907	511	1914	172	908	215	0909	011	0909	510	01041111
0973	915	1913	168	191"	314	0911	224	0911	012	091>	092	22241122
0912	n 17	1913	372	3912	112	0915	314	0916	0 1 4	0917	001	22041202
0914	234	0719	204	1919	214	0350	211	1500	711	1500	001	01041301
0355	935	2666	205	1005	U 5 0	1005	125	1003	311	1003	031	224400

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1934	227	1333	043	1005	111	1005	184	1006	210	1006	005	01041500
1007	415	1007	077	1009	224	1005	3 > 0	1009	017	1000	049	01041600
1010	111	1910	357	1010	0 3 5	1011	313	1011	274	1017	431	01041700
1015	035	1131	011	1101	214	1102	213	1105	016	1102	001	00041900
1123	111	1133	944	1103	0.28	1104	1 ? 5	1100	999	1105	017	01041400
1135	005	1176	125	1107	314	1107	289	1109	0 1 1	1108	005	91945409
1139	203	1137	915	1117	134	1110	0.31	1111	011	1111	004	93985100
1115	433	1115	232	1113	235	1113	0 7 7	1114	015	1114	001	0002500
1115	221	1115	909	1116	150	1115	221	1117	211			01045300
5.5	• J v C	PETT	. 449	· F5 + 3	6424	ELEMEN	7 44	A TOPT I	4-51	GHT/8Y	AST F	P101045401
0121	0 7 0	0101	200	2105	0.00	0105	000	0103	647	0103	000	0002500
0134	120	2104	222	0105	770	0105	220	0105	313	0104	000	0005000
0177	222	2127	333	2109	33n	0105	111	010	900	010	000	01012700
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0113	010	1115	377	1050	111	0505	220	0505	211	0203	000	01042401
0513	000	3534	202	905c	0 3 0	0205	111	0205	360	9050	000	01013000
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0372	000	0305	300	2303	775	0303	111	6303	000	0304	667	01143301
0370	~ > 0	9335	200	0305	220	0307	220	0308	340	0304	040	01043400
0314	130	051 1	277	2311	230	0315	212	0313	950	0314	000	01143501
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0521	. 20	0155	909	1353	030	0354	000	0325	344	0326	000	01045700
0327	220	1329	203	1327	179	0330	222	0331	310	0332	000	01045400
0131	220	1332	223	1335	770	0335	311	0337	211	0337	000	01033401
053A	979	2339	277	0339	226	0340	113	0341	990	0 542	000	93944900
0323	131	0 4 4 4	070	3545	220	0345	220	0346	211	0347	000	01044100
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0 2 3 5	900	3475	200	1405	930	0406	210	7406	720	0407	000	9194400
0437	000	1434	200	2404	770	0000	779	0409	311	9411	000	09044500
0 810	0.00	1311	077	2115	530	0412	211	0413	000	0413	000	01044600
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0514	330	3537	330	3507	020	0505	111	0509	300	0509	000	22024902
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0734	000	2704	200	2705	230	0705	010	0707	200	0707	000	01045300
0739	222	0799	200	0709	930	0709	999	0709	000	0710	.00	01045400
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0713	222	2713	010	2715	010	0715	220	0901	799	0801	000	01045401
0912	220	1912	202	1901	579	0901	370	0901	020	0902	211	13035700
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0914	220	1775	211	1915	000	0906	310	1906	010	0907	000	01145901
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0779	330	0913	200	0910	330	0911	370	0911	010	0917	000	01045100
9912	110	1915	200	2714	220	0915	330	0916	000	0917	000	0000000
0919	120	1919	013	1919	030	0920	220	0921	000	1500	000	01046300
0955	120	0923	201	1002	220	1002	213	1003	210	1003	000	01046400
1992	330	1004	222	1015	250	1005	220	1006	220	1006	000	01045500
		-			-			-	-			

1997	221	1 107	200	1009	030	1709	212	1009 010	1009	000	11016600
1010	750	1010	200	1210	030	1211	212	1911 390	1012	000	01016700
1012	000	1101	100	1101	220	1102	517	1102 210	1102	000	01045500
1123	253	1103	223	1103	222	1104	370	1104 010	1105	000	11986900
1125	120	1139	000	1107	152	1107	220	1109 313	1109	000	01047000
1139	135	1107	303	1110	775	1110	313	1111 125	1111	000	01117100
1112	220	1112	110	1113	000	1113	227	1114 220	1114	000	01047200
1115	220	1115	333	1116	330	1116	220	1117 000			01087300
57	JVE	PCTT	FUBA	1293	2273	ELEVEN	T 44	PREFLIGHTIM	848 PR	FFLIG	HT01047400
0131	212	2121	015	2105	124	0102	111	1103 142	0103	046	01197500
0124	113	3134	904	0105	215	0105	31!	0106 011	0106	005	01037600
0127	013	9197	092	3105	175	0108	112	0109 012	0109	001	01047700
0111	734	1113	202	3111	214	0111	317	0112 250	0112	053	00027900
0113	330	0113	307	1050	124	5050	912	540 5050	1050	150	99047900
0225	137	1204	274	0204	954	0205	921	0205 029	4050	012	01045000
0236	224	1237	941	205	094	9650	312	0209 012	9050	071	00045100
0210	134	2211	345	1150	112	0301	213	0301 056	0502	003	01045200
0332	227	9395	203	2303	013	0303	325	0303 111	0304	011	01045500
0174	152	2125	519	0305	221	0307	211	0305 311	0308	001	11045400
0324	003	3313	005	2311	0.03	0312	500	0313 003	0314	001	01049500
0315	221	2316	201	1317	003	0314	221	0319 013	0320	005	01019400
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0127	113	2355	003	1327	0.25	0330	223	0331 012	0332	023	01049900
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0324	030	2347	222	2352	020	0351	0 > 5	0351 223	0401	025	00049200
0431	188	2375	115	1402	139	0405	510	0403 244	0404	007	01049300
0435	007	9405	315	3405	902	0405	949	0406 018	0407	150	01949400
0437	152	3419	917	2405	0 70	0409	392	0409 014	0410	500	01049500
0210	230	0 211	202	7412	575	0412	057	0413 248	0413	005	01049400
0501	512	3511	0 > 5	2501	005	0502	0 2 7	0502 016	0503	046	00049700
0513	0.59	3534	350	0504	944	0505	9 > 5	0505 095	0506	053	01049900
0516	117	7507	135	2507	9 5 8	0509	015	0504 023	0509	467	01049900
0379	015	1511	250	2501	017	2000	335	0303 011	0003	006	01050000
0573	- 34	0434	277	2505	011	0605	460	0605 027	0606	0 9 3	00050100
0577	547	2711	221	1702	221	0702	0 9 7	0703 001	0703	008	0050200
0774	015	0704	053	2705	071	0705	217	0707 015	0707	013	00050300
0774	335	1754	315	2707	001	9709	015	0709 311	0710	003	01050:00
0719	251	9711	779	2711	003	0712	211	0712 017	0713	018	01057500
0713	221	0714	901	5715	015	0715	221	0801 044	0801	374	01053600
1972	374	7972	213	0901	125	0901	0 7 3	901 0n2	2000	005	01050700
0777	137	0415	201	200	037	0903	070	0904 098	0904	035	01053903
0974	334	3915	337	0905	050	0906	250	0905 004	0907	006	0000000
0937	254	2927	211	1909	005	0909	225	0909 011	0909	012	11051000
0478	115	2010	1 4 3	9910	114	0 1 1	228	0911 012	0915	065	02051100
0717	5)7	9913	200	3914	950	0915	224	0916 094	0917	001	01051200
3714	124	0715	9 0 6	0 9 1 9	0 3 4	0650	221	100 1590	0921	001	01051300
045>	: 25	0.552	205	1005	054	1002	252	1003 011	1003	0 5 1	11051400
1274	227	1004	043	1005	011	1005	154	1006 097	1004	005	00051500
1007	225	1007	227	1009	0 7 9	1009	3 > 0	1009 017	1004	0 .	03051600

1110	111	1210	757	1210	225	1011	215	1011	379	1012	431	01051701
1112	425	1101	211	1161	nta	1102	228	1102	216	1102	001	02051900
1178	911	1113	985	1103	0.15	1104	125	1104	240	1105	012	01041905
1115	075	1135	115	1107	216	1107	345	1105	221	1104	005	01052100
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1115	131	1115	113	1114	150	1114	221	1117	010			01055300
29	₽ jug	1174	F425	. 693	2274	FLEVES	7 44	DATEY/H	345	DATLY		01052401
0111	210	2121	115	2102	114	5010	221	0103	142	0103	046	00052500
0114	113	2123	0 A u	1105	125	0105	221	2105	221	0106	005	22055607
0117	113	2127	112	7174	175	0104	192	0109	510	0109	001	01052700
0110	994	0111	215	7111	114	0111	313	0112	050	0112	023	20025000
0113	332	1113	777	1701	134	4969	012	4505	242	0203	150	01052901
0223	157	4560	274	1504	250	0205	0 > 1	0205	0 > 9	9206	510	01053000
0234	034	1217	701	ノシリマ	114	4500	312	0>03	112	0209	091	01053100
0219	339	4511	325	1511	132	0301	013	3301	256	0302	003	01053200
9592	820	2322	113	1304	113	2050	125	0303	201	0404	011	01053300
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0429	123	0 41 7	513	2311	113	0317	215	0313	013	0314	001	01153501
0315	221	1315	201	7517	113	031	221	2615	0 1 3	0320	002	11055401
0321	115	2155	221	2451	2.11	0374	111	1325	771	0325	003	02053700
0327	113	4124	ロリラ	1329	125	0330	213	0 5 3 1	312	0332	003	*****
0331	223	2551	115	1135	113	0315	111	0337	211	0537	001	11055901
0350	111	CFFG	533	2539	332	1340	113	2341	771	0542	0.0.0	22054202
0.41	222	n 14.	0.00	2422	730	1365	111	0345	300	0347	105	01154107
0334	111	0343	11.7.7	1451	110	0351	225	0351	213	0401	025	11154211
0031	334	9372	225	1405	779	0403	112	0203	244	0404	007	01054805
0125	127	5415	115	2405	117	0405	243	0405	118	9407	021	2225462
9497	142	1114	227	946	200	6020	115	0409	314	0410	500	11034501
0310	252	1211	222	1412	212	4412	357	3415	248	0413	015	11154511
0511	112	2521	124	1511	175	1512	727	0502	016	0503	046	99954709
0513	129	1514	141	1504	719	1515	125	1505	035	0506	0 2 3	01054400
0525	113	1517	5 4 4	1507	128	0509	312	0504	323	0509	457	01053900
0710	114	2521	250	1501	117	0502	115	1603	311	0603	006	01055100
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0774	115	2712	153	7705	111	3705	117	0707	0 15	0707	013	01055800
3734	135	0705	113	2703	131	6010	212	0707	111	0710	003	01055400
0710	251	1711	774	7711	111	0712	111	0717	200	0713	014	01055500
1713	171	0712	201	7715	115	0715	271	9901	700	0401	374	01055401
0912	474	1412	225	1901	115	1060	715	0901	012	090>	015	01055700
4212	137	1312	221	3935	017	0903	277	9904	0 1 8	0904	035	01155001
7772	974	1215	227	7405	726	7775	135	1905	224	0907	0.06	01055900
0777	154	1997	311	7704	137	909	3)5	0909	011	0909	012	01055000
0224	115	1317	1 2 5	5911	114	0911	215	2911	212	1917	95	01055100
0212	977	1215	115	1912	215	0915	224	0915	394	0917	001	01054201
0314	114	1914	104	0919	374	1921	111	0921	111	1590	001	01055301
9222	125	1151	112	1302	255	5001	125	1003	011	1003	431	01155401
1224	137	1223	745	1005	211	1005	134	1004	112	1006	200	22055502
1777	415	1137	227	1704	119	1008	323	1009	9 7 7	1009	049	01055601
1212	111	1717	147	1919	115	1711	713	1211	379	1012	451	01055703

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1712	035	1101	011	1101	014	1105	013	1102	116	1102	001	0000000
1123	211	1103	245	1103	0 3 8	1100	125	1104	90	1105	015	00067000
1125	035	1105	905	1107	016	1107	035	1108	100	1109	005	01057000
1139	003	1150	015	1112	039	1110	3 3 1	1111	110	1111	004	03057100
1112	433	1112	030	1115	035	1113	097	1114	115	1114	001	0057200
1115	991	1115	909	1115	150	1116	331	1117	010			00057300
23	PINE	TTOV	FV25	L293	. 373	ELEMEN		PERIODIE	144	SYS PER	DICCT	01057400
0131	010	0101	005	0102	034	0102	001		142	0103	046	01057500
0124	013	0104	003	0105	200	0105	331		001	0106	005	02057600
0137	014	0137	902	0105	175	0108	112		117	0109	001	01057700
0110	004	0110	205	0111	014	0111	010		30	0112	053	20057500
0113	330	0173	007	0201	034	0505	012		92	0203	150	00057900
0>23	137	0704	074	1204	058	0205	0 > 1		77	9050	012	01055000
0>36	004	2207	541	205	134	4050	215		12	0209	091	01055100
	005	1150	345	2511	132	0301	013			0302	003	
0110	830	0302	013	2305	013	0303	225		056	0304	011	00055500
	032	0305	203	0305	031	0307						
0333			-	0311	013	0312	001		101	0304	001	00055400
0339	221	0310	995	1317	033	0318	215		13	0314	001	00055500
0315		•	221	•			221		003	0320	200	00055600
0321	005	0355	111	0323	271	0324	221		21	0326	303	00055700
0327	013	0329	005	1320	025	0330	273		15	0335	003	00055500
0333	003	0 434	205	0335	033	0335	130		11	0337	001	03055900
0354	930	0339	055	0339	0.25	0340	995		100	0342	000	00047000
0333	220	0344	222	0345	0.50	0345	313		000	0347	005	01044100
0334	990	034	200	0350	000	0351	0 ? 3		113	0401	052	01059500
0931	2 4 4	0205	015	0405	039	0403	015		40	0404	007	00059300
0175	337	0405	015	205	025	0406	357	1000	18	0407	150	09059400
0397	0.55	0209	227	9405	0 4 0	0409	335		14	0410	005	09059500
0410	030	0411	005	0415	525	0415	257		148	0413	005	00057600
0531	112	1531	156	0501	175	0205	9 ? 7		116	0503	046	01099700
0503	159	3534	150	1504	034	0505	0 > 3		195	0506	053	00059900
0534	019	1517	035	1507	258	0505	215		52	850	467	07057900
0539	016	9901	069	2001	017	0005	226		11	0603	006	0000000
0534	7 4 4	0404	277	0505	211	1005	239		27	0606	0 • 3	00060100
0537	544	0701	201	2070	991	0702	207		01	0703	00	00000500
0704	015	0704	053	0705	221	0705	017		115	0707	013	01060300
0734	005	3735	015	0709	001	070	216	-	01	0710	003	00000000
0716	051	0711	775	0711	0 3 3	0715	0.11		200	0713	018	07060500
0713	001	2714	201	1715	115	0715	211		4	0801	374	01160610
0435	574	0902	203	0 0 0 1	125	0901	0 3 5		15	0005	005	0000000
0975	0 3 7	3315	201	203	0 2 7	0 0 0 3	070		118	0904	035	00000000
0 3 3 4	004	9995	007	0905	050	0900	396	0906	14	0907	00.	01040400
0 7 3 7	958	0 3 0 7	111	2964	005	0 0 0 8	005		11	0 • 0 •	012	00001000
6930	915	0 1 1 0	143	0-10	714	0911	315	0911 (105	0915	045	00061100
0915	007	0913	905	0914	025	0915	224		14	0917	0) 1	0001200
0316	034	0715	906	0-1-	034	0.50	991	0921	10	1500	001	00061300
2360	225	0.52	005	1005	050	1005	0 > 5	-	11	1003	031	00061400
1004	107	1004	745	1005	311	1005	134	1006	50	1006	005	00061500
1977	200	1907	307	1009	034	1009	350	1000	17	100	049	0001600
1910	111	1010	267	1010	035	1011	013	1011	79	1015	431	00061700
1115	005	1151	011	1101	214	1105	013	1102	16	1102	001	0001800

1135	011	1103	045	1105	938	1104	1 > 5	1104	090	1105	012	07041900
1175	035	1106	005	1107	016	1107	946	1104	001	1100	005	00054000
1139	003	110	015	1119	004	1110	341	1111	001	1111	004	00154010
1112	433	1112	030	1113	005	1113	037	1114	015	1114	071	000554000
1115	001	1115	209	1116	150	1116	0 3 1	1117	000			01002300
33	FUN	PCTTS	FNES.	L293	**23	ARCRH	147 4	3787/44	191	NG AIRC	4E -	01052400
0131	000	0101	000	0102	020	9010	000	0103	667	0103	000	01062500
0134	000	0104	000	0105	000	0115	000	0106	333	0106	000	00052000
0137	030	0107	000	0109	030	0109	000	0109	000	0104	000	01062700
0110	000	0110	202	0111	000	0111	000	0112	000	0112	000	00056000
0113	000	0113	300	1050	000	2050	0 5 0	0505	010	0203	000	0005400
0803	900	0264	000	9050	000	0205	990	0205	000	0206	000	0 7 0 6 3 0 0 0
0236	000	1050	000	0209	000	8050	220	.050	000	0209	000	01063100
0210	200	0211	000	1150	020	0301	170	0301	000	0305	048	00063200
0522	999	0302	000	2303	0 75	0303	000	0303	300	0304	667	00063300
0334	900	0335	000	0306	020	0307	200	0308	000	030A	000	01063400
0339	030	0310	000	0311	000	0312	030	0313	000	0314	000	02063500
0515	900	2316	000	0317	020	0319	000	0319	000	0320	000	01043600
0321	020	2255	300	0323	000	0324	000	0325	300	0326	000	01063700
0327	000	0125	202	0329	000	0330	010	0331	010	0332	000	01063900
0133	000	0334	000	0335	000	0336	020	0337	000	0337	000	00053900
0338	000	0339	000	0339	020	0340	000	0341	000	0342	000	11064000
0313	000	0344	990	0345	070	0345	220	0346	000	0347	000	03064100
0548	000	2549	000	0350	000	0351	0 2 0	0351	010	0401	000	01064201
0431	900	5000	020	5000	000	0403	220	0403	000	0404	000	02054500
0035	930	0405	000	0405	000	0404	000	0406	210	0407	000	01064400
0477	000	0405	200	0408	020	0 80 9	000	0409	010	0410	000	02044500
0010	000	0411	37.0	0412	200	5140	920	0413	200	0413	000	01056600
0501		0501	000	0501	000	0502	220	0502	000	0503	000	01044700
0533	000	0504	000	0504	000	0505	220	0505	200	0506	000	22264800
0536	000	0507	000	0507	030	0508	220	0508	900	0509	000	00064900
0500	000	0601	000	0601	030	2000	000	0603	000	0603	000	00065000
0634	000	0504	200	0605	000	0695	990	0606	000	0606	000	03065100
0637	000	0701	000	0702	000	0702	000	0703	005	0703	000	07065200
0704	000	0704	000	0705	230	0705	330	0707	200	0707	000	00065300
0708	030	0708	000	0709	020	0709	220	0709	000	0710	400	01055400
0710	000	0711	000	0711	000	0712	0 7 0	0717	390	0713	000	00045500
0713	000	0714	900	0715	030	0715	000	0901	***	0801	000	00065600
0932	000	9992	900	0901	579	0901	000	0901	000	0902	211	01065700
0972	000	5040	000	0903	135	0903	930	0404	115	0904	000	03065800
0774	000	0905	200	0905	000	0906	990	0906	000	0907	000	00065900
0937	000	9997	000	0908	020	0908	000	0909	000	0909	000	02000000
0939	930	0910	000	0910	0 5 0	0911	020	0911	300	0912	900	00066100
0912	000	0913	000	0914	330	0915	220	0916	000	0917	000	00066200
0019	000	0718	000	0919	000	0920	010	1500	000	1500	000	00000300
0455	990	0923	000	1008	020	1002	000	1005	900	1003	000	00066600
1034	300	1004	200	1005	250	1005	370	1006	200	1006	000	01096500
1027	930	1997	100	1004	000	1008	310	1009	000	1000	000	01066603
1010	750	1010	900	1010	220	1011	230	1911	990	1012	000	00966700
1012	000	1101	000	1101	000	1102	519	1102	200	1102	000	01044800
1125	063	1103	990	1103	000	1104	220	1104	000	1105	000	00000000

?) Function tables 32, 33, 34, 35 and 37. For each of these functions, the function table definition card for HLH and CH-47 models P22 has been replaced by FN46. That is, whenever these function tables are addressed, function 46 will be used to indicate which element of the function table is to be selected. As previously defined, parameter 22 was used to identify the element that was to be selected. Also on the function definition card, these function tables have been modified from discrete function tables with a D identifier to list-type functions with an L identifier for the number of discrete points in the function table. Due to the occurrence in the CH-47C model of multiple maintenance actions on the same element number, it was necessary to modify these tables to list-type functions. Discrete function tables do not provide the analyst with the ability to keep the same functional X value for the table for various points within the function tables. for discrete function tables, the X value must be monotonic increasing. It was desirable to provide the analyst with a method of keeping all the various elemental values of these function tables compatible with the work breakdown structure or element identification number system employed. These tables have been modified to list-type tables. It should be noted here, however, that in the situation where list function tables are employed, the X value of the function table is not even analyzed by the computer. Rather, it merely assumes that the Y values of the function table are related to numbers running from 1, to the total number of discrete data points for the function table as defined on the function table specification card. Function table 46, which defines the element number in terms of a number running from 1 to the discrete number of data points in the model as a function of the inputted element numbers, is significant to the proper actuation of the model. These element numbers are dummies when a model has more than one task per element number. They have been biased to conform to requirements of a discrete function table that the element numbers be monotonic increasing. However, it is felt that this bias, which is merely a manipulative problem and has nothing to do with the proper functioning of the model, in no way distorts the results of the model and, furthermore, allows the analyst to properly code his element numbers with respect to all the R&M data for all other function tables of the model.

1125	000 11	36 300	1107	152 1107	000 1109	013 1104	000 00047000
1120	152 11	9 202	1112	076 1110	000 1111	025 1111	000 00047100
1117	100 11	15 000	1113	000 1113	330 1114	000 1114	000 01067700
1115	000 11	5 000	1116	000 1116	130 1117	000	01067300
•							22057402
•							01067501
31	PUNETIT	V -10,	F 4				02047600
5	F434 5	*433	•	F432 16	F 4 3 5		22057700
•							0 2 0 4 7 8 0 0
							0 7 0 4 7 9 0 0
39−25	PUNCTIO	6871 V	. 693				01049101
0171	10020000	11 2220	Soloce	5010050000	0303010103	0000200103	000000000055100
0134	100550000	3000	100105	201005000	2100000105	0422340106	00000001049200
0137	10250000	7 2220	101109	220250109	3300010104	0000240104	000000000055300
0110	10050000	15 5000	100111	0707250111	21100000112	5110450000	00000001759400
2113	10650000	3 2220	10201	2020456066	2200550505	205000000	00002501065501
0223	2000000	11 1130	203066	7707000205	0100250205	405000000	00002501049+00
0276	3000005	17 3000	275696	0303560208	9050000000	#050#Snnnc	000000000055700
0110	20072505	11 2222	251211	000000000	102052540	200000302	00002611069900
0552	33000003	17 1111	111313	fofodscoco	32000000303	390000030#	00002601055400
0374	33773773	15 1000	>40506	0000260367	5300250309	906005000	0000000000000000
0359	22022408	10 1010	>60311	5120456066	1100261313	2110051010	00002601069100
0315	1002006	6 3333	260317	1161656161	3300250319	0400240320	00002601049200
0321	13002415	0000	25666	1202240324	22205205	3400260326	00002601069300
0327	30002503	ירתרם פי	950529	1211261331	11250656666	2200200332	00002001059400
0333	30002603	חחרה שנ	>50335	00000000336	22225252	0900260337	00000001069501
0554	20002508	ררנו שו	251134	1001100541	1111261341	545045045	00002500059600
1323	00002503	14 3737	>50345	0000256545	047000000	0110260347	00002611049700
3348	200055030	19 1000	250350	1760056066	121042000	0100000401	00002601069400
0931	90000000	0000	20005	*****	22226403	990000000	00002601069900
0435	37342714	15 2020	100405	0000000406	0700260406	2100000407	00002601070000
0437	00000000	0000	>61409	3303030407	222250404	3100000410	00002601070100
0 4 1 0	00000004		>67415	230250415	2222000413	0100260413	00000000070707000
0501	00002505		100501	302000000	2000540205	3100001503	00002601070300
0993	90000005	9 3000	>50504	1303300505	202042006	010000504	00002601070400
0534	30606005	יר החב דו	>60507	1201100508	220250505	00000509	0000200070500
051	200202020		P61601	200000005	220250003	200050003	00000000070600
0634	000054040		100905	120250002	3330000000	909092000	00000000070700
0537	20015907		20706	0000500105	22220222	0100260703	000000000000000
0734	00005007		111705	120250705	0000000707	3100260707	00000000070900
073R	100054070		100707	0000000000	0100000709	210000710	00002600071000
0710	300003071		> 0 7 1 1	2170000005	1100500115	2100000713	00002601071100
0713	530505071		261713	0201250715	2220220801	100050000	00000000071200
0425	99005699		100401	1000560601	0500010901	200000000	00253501071300
0972	20000000		100003	2003500603	3300000004	0000E554C	00000000071400
0974	00000000		51915	000000000	0000250006	310000007	00002607071500
0937	2200020	-	10000	2202570404	330000009	9090450000	00000001071600
0.00	2202020	_	00710	000000011	2120550911	310000012	00002400071700
0912	220202041		90014	0303500612	3300250916	0400240917	00002601071400
0919	030050091		130919	1200554656	3260520016	0100260921	00000001071900
0.55	99999999	3 0000	50014	Snoidscocu	0100001103	2622351003	000000000072000

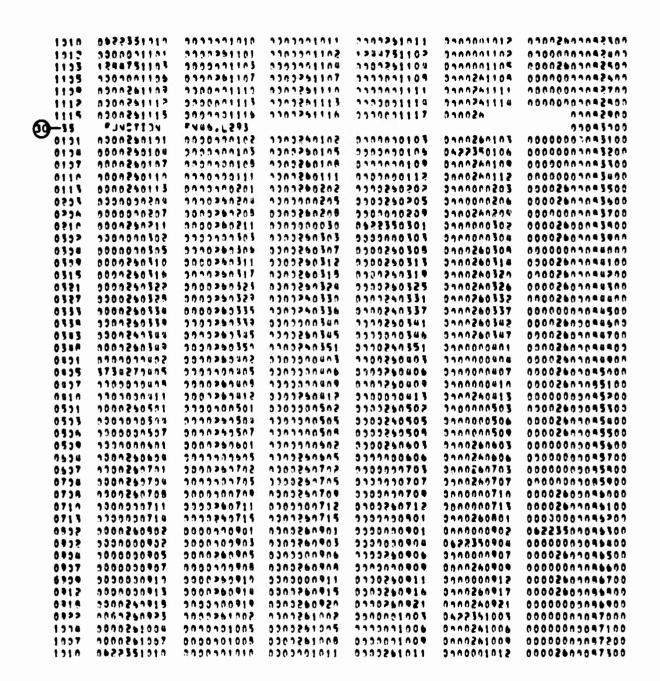
30 Function table 33 has been modified to a list-type function table.

1114	1001261114	0000000000	20010561005	7707071006	3101261006	00000000072100
1127	1001261107	0100101009	900165666	2220011000	3101261009	000000011172200
1210	1922351211	2222201010	2202001011	1101251011	510100006	0002600072300
	2222021121	3133251101	20110000	1244751102	20110000102	
1015						00000000072400
1123	1204751103	2111111103	2707101104	1100251104	011111111	00025000072500
1175	0000011106	1010251107	2207261107	2222021104	3101261108	00000001072600
1139	2000501174	222211112	0301591110	212201111	11111650016	00000001172700
1112	2000591112	2000001113	2307561113	1137011114	0111450000	00000000072900
1115	1000251115	2112121115	0707291116	1101011117	22005	01072400
(3)—11	PETTINE	.444. F5.2				22273000
0131	1010450001	3113111112	Soinescoco	0000000103	2010050000	00000001073100
nija	9011650001	2000202105	2010550105	1100010101	0522350104	00000001173201
0137	7010250107	000000000	2707250109	5010000103	2200260109	00000001073300
-	0000250110	3330333111	1110650000			
0110				7333030112	220050115	00000000073400
0113	0000250113	105000000	2020925056	2123250202	200000000	00002600073500
0532	2201011204	1010390504	111111512	202665000	3100000506	00002601073401
0536	70000000207	2062364504	0202570504	9050000000	0000000000	00000000005053700
0510	1150425000	22222221	1000000501	195523201	202000000	07002607073900
0322	50000000502	11111111111	1000250303	2101020303	3900000304	00002601073900
0324	2021020115	2222202305	1000260307	220250308	0100260304	00000000074000
0329	2200522317	2120252311	2160456066	1100250011	220020014	0002601074100
0315	200250515	0000260317	Prendschee	1200250319	0500240320	0002601074200
0321	221620066	2010250323	0201260324	225045001	0100200326	00002600074300
		1000260329	02005500330		255002000	
0327	950050055			1200550331		00002601074400
0333	0000540134	0110250335	0001240336	2101250337	2200540337	00000001174500
0359	1010590114	0100250539	0000000340	0200240341	2200345	00002507074500
0321	1001240344	2111290343	1201250345	2122222345	3 7 7 7 7 8 7 8 4 7	0000267774707
0345	1000593319	3003243350	1303250351	1220550351	770000401	00002607074900
0491	1011011417	201054066	3303310403	1100250401	3900000404	00002607074900
0235	3734270475	11111111115	1111111111	222250405	3990000407	00002600075000
0927	1001000409	1111251405	Phunterger	11117740407	22200000410	01002601075100
0311	1335333411	2127257412	1212250412	2222222415	2200240413	00000000075300
0531	1330251511	2112121501	1317171512	222250502	310000503	02002601075301
0513	2222020524	2222504	0201110505	1111251505	310100506	00002601075400
3516	1211221517	1112251507	121111519	210250505	2200000509	0002501075500
			500000000	1111240403	2200240603	
0519	1001000511	3173251611				00000011075600
0504	1000550504	11111111605	1111250505	1111110606	3707240604	00000011075700
0537	22222111	1111251712	1313561715	22222222	2110240703	00000001075901
0734	1111595714	112112775	121250705	9100010707	3100240707	0000000075900
0738	5551255779	1111111111	1111250709	1111110709	3700000710	00002601076000
9719	111111111	1111251711	217005165	3333260712	21700000713	0002601075100
2713	11777777714	2417152417	1111111115	11111111111	108065000	0000000000000000
0922	200050000	1031111901	1717250711	3131010901	200000000	06223501076500
0772	1111111111	1111111111	1111261913	2111210904	3422359904	03000001076400
9994	1211111115	1111231915	131111905	1110240904	1100000007	10002611076501
0727	1001111717	3110101709	1301240404	112300000	909045000	00000000075600
0919	112101011	2112241912	1301100911	2777250911	3100000912	00002601076700
	1111111111111	3111251710	5303260915		011760917	03002601075700
0912		1000		1111250915		
7318	1100550919	1111111111	1313590451	1260520055	3200540451	00000000076900
0455	1011540353	2001920005	1313561005	1110011003	2422351001	00000000077000

30 Function table 34 has been modified to a list-type function table.

1997	222251227	3030101004	00010501009	2200111000	9001650000	00070001077200
1010	1622331111	2020101010	000000011	1101650010	9400001012	00002600077300
1212	10111000001	2002201101	9000001107	1244751102	2011000000	00000000077400
1123	1284751113	222221103	0301101104	222251104	3000001105	00002601077500
1125	0101011106	2002261107	2202241107	1100011108	JAN: 261108	00000001077600
1139	9300291139	200220:110	1303251110	2222021111	1111050000	00000000077700
1112	2111450011	0000101113	0202261113	2100001114	200261114	00000001077900
- 1115	1001251115	220221110	0202561110	2102001117	200024	01077901
69-12	PUNETITY	FU46. 293	0000001110	3 - 4 5 17 17 17 17	3 · · · / · · · · · ·	01075000
0131	1000597101	Suluciocic	501005cncn	2220020103	201085000	00000000079100
	_	2700101105		2200020106		
0174	1000250104	27707101175	0303260105		0477350104	000000000076200
0177	22225777		1201250108	000000000	0100200109	00000000078300
0115	0000250111	0777410111	1110620000	21100000112	2110450016	000000000079400
0113	5700260113	102000000	2020026050	1100500505	000000003	00002600079500
0524	2200000504	000020204	1202200205	2220570502	902000000	00002605075600
0 > 26	9900090507	5000251505	992096666	21220202020	P 050850nr0	000000000079700
0510	1150421011	1112164666	000000001	105055566	2010000000	00002600079900
0832	1100000505	202020303	0100560303	000000000	0100000304	00002401079900
0 7 2 4	1000010305	2720241506	220250307	1101541304	0400500304	00000001179100
0319	1001240310	1161650000	2150950000	2100520113	3400260314	00002601079100
0315	1000550314	2011561317	220250315	-160540310	024042040	0002600079200
0321	2220420006	2250460665	1260656066	1100240325	4580450000	00002611079300
0127	1001541574	222446666	130359444	1111241331	544454446	00002601079400
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30 Function table 35 has been modified to a list-type function table.



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31 Function table 56 has been defined to provide the distribution of maintenance actions at the PMI conditional upon detection of maintenance at the PMI.

32 Function table 57 has been defined to identify the relative probability of maintenance by subsystem at the PMI.

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             INTTTAL
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ENT BER 464 BY 4.C. FOR PHI -10THS
             INTTIAL
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             INTTTAL
                                 481(11,1),34
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                                                                MINTHUM RESPOT TIME -10THS
             THITTAL
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            INTTTA.
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HAY FLYTHS HTIR PROGRAM - 1074
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                                 441/0,41,5
                                                                STHULATTON INTERVAL -10THS OF HRS
             THTTTA_
                                 471(4,11,572)
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33 Fullword save value 191 (X191) provides generality with respect to platoon size.

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UNACCOUNTABLE HOURS-OF NOT IMPACT
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INTTTAL!
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INTTTAL
             4×1(6,1),0
INTTTAL
             WH1 (0,10),1
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THITTAL
                                 IST SHIPT DIRATION-INTHS
             4x3(1,1),40
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             483(1,4),60
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-THITTAL
INTTIAL
             441(1,4),1
                                 LAUNCH # 1 4188104 TYPE-18T PG1381TY03154700
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INTTTAL
                                 LAUNCH # 3 HISSION TYPE-18T PRIDRITY00194900
INTTTAL
             441 (4,5),1
THITTAL
                                 LAUNCH & & MISSION TYPE-187 PRIDRITYONISSHOO
             441 (4,5),1
                                 LAUNCH # 5 MISSION TYPE-1ST PRIDRITY03195100
INTITIAL
             441 (3,5),1
INTTTAL
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INTTIAL
             441(7,5),1
THITTAL
                                 LAUNCH # 5 MISSION TYPE-187 PRIORITY00155400
             441 (4,5),1
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INTTTAL
            441 (3,5),1
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THITTAL
            441(1,10),3
INTITAL
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INTTIAL
                                 LAUNCH . 3 NUMBER A/C
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             441 (3,10),3
INTTTAL
             441(4,10),3
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THETTAL
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             44114,101,3
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INTTIAL
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INTTTAL
             441 (7,10),3
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             441(4,10),3
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             441(1,11),70
THITTAL
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INITIAL
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             441(2,11),15
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INTTTAL
             441(1,11),15
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INTTIAL
             441 (4, 11), 15
THITTAL.
             441 (4.11),15
INTTIAL.
             441(6,11),15
                                 TIME RETASEN THIS LAUNCH & PREVIOUS COLSTION
INTITAL
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             441 (7,11),15
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             441(4,11),15
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                                 ENT FOR ATOCREM THOP. - 10THS
INTTTAL
             441(4,13).0
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INTTTAL
             441 (7.13).0
                                 LAUNCH TIME TO REPLACE ABORTS-10THS 00197900
                                 PERCENT IN-FLT ARTER REPLACED/1000 00198000
INTTTAL
            441(1,17),900
INTTIAL
                                 WT.STANDEY AZO BY WIRSTN TYPE 00198100
FLT DJANTION FOR ABORT DEPLACEMENTS 00198200
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             441(1.15).1
THITTAL
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THITTAL.
            445(26,3),2400
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INTTIAL
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THITTAL
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THITTAL
                              445127,43,0141
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THITTAL
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                              445127.101,0357
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                              445(27,11),0751
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INITIAL
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THITTAL.
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                               445(27,12),0952
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THITTAL
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THITTAL
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INTTTAL
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INTTTAL.
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THITTAL
                               446(28,3).6
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                              446(24,4),6
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THITTAL
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INTTIAL:
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INTTIAL.
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INTTTAL
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THITTAL
                              446(25,4),6
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THITTAL
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                              445(25,9).6
                              444(29,101.6
                                                                              CHYCOO, CHOSONIELC THINGS COVENS
INITIAL
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- 34 Fullword save value 189 has been established to identify the PMP interval in tenths of hours.
- 35 Fullword save value 193 identifies the number of "week end" nonworking hours per week in tenths of hours.
- Fullword save value 194 identifies the number of aircraft required for the first mission of the next day. It is employed to determine whether or not maintenance personnel should be required for overtime maintenance at the end of the day. If this save value is not defined, no overtime will take place.
- 37 Fullword save value 190 has been identified to establish the PMI interval in tenths of hours.
- 38 Fullword save value 192 identifies the number of working days per week.
- 39 Fullword save value 195 identifies the number of days between calendar inspections. If no calendar inspections are to be performed, input a dummy value of 30,000.
- 40 Fullword save value 196 identifies the window for calendar PMP activation. If no calendar inspection is desired, input a dummy value of zero.
- 41 Fullword save value 197 contains the number of TBO components per aircraft. It must be a number less than 25.

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TATTTA_
                                           445(24,111,4
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- 42 Card 1805 (ZZB) has been generalized with respect to platoon size by the use of save value 191 in place of a constant in the logic.
- Card 1809 has been modified to assign a random number of hours which is calculated through variable 231 to parameter 40, that is, the initial hours on the aircraft. Variable 231 generates a 6-digit random number which is then taken modulo save value 189 which is the input value of the PMP interval. Thus, this assign statement generates values for parameter 40 which are dependent only upon an input parameter, namely value 189, rather than logically dependent upon a constant, as was the case of the original UH-1 model when this assign statement generated values for parameter 40 as a function of random number generator 1. Thus the original UH-1 logic always generated initial airframe hours in the interval 0 to 99 hours.
- 44 Card 181010 has been added to assign a random number of hours since last daily inspection to each aircraft through variable 237.
- 45 Card 1816 has been modified, due to the increase in model size, to facilitate a 24 aircraft platoon.
- 46 Card 1818 has been modified to accommodate a platoon size of 24 aircraft.
- Cards 1824 to 1828 have been modified to ensure against 47 certain rather obscure situations; aircraft could be subjected to extra erroneous PMI inspections which originally could arise in the Government-furnished UH-1 model. Modifications to the logic shown in these blocks insure that this situation will not occur. The logic has been changed by testing parameter 35 for a flag to determine whether or not the aircraft has just received an intermediate or a periodic inspection and therefore, has its parameter 35 value flagged at 999. Also, cards 1825 and 1826 have been generalized to be functionally dependent upon variables 234 and 235, rather then logically dependent upon constants as was the original case in the UH-1 Furthermore, the tests in cards 1825 and 1826 have been changed from a test less than or equal to, as was the case in the previous or original model, to a test less than. Again, it is felt that in certain obscure instances, the logic of the original model could allow aircraft to slip through this test and not undergo PMI or PMP inspections when really required. It should be noted here, however, that any of the modifications in this area of PMI, PMP interaction generalization were irrelevant to the original UH-1 model. This is because the original model required that all aircraft receiving PMP or PMI inspection would go through a test hop. In the case of the CH-47C and HLH, it is felt that an intermediate inspection would not require a test hop. Thus, this eventuality arose where PMP inspections could be erroneously duplicated.

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          SAVEVALUE 17+, <1,4
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                       V147, V234, AR417
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                       V11, V236, 48417
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                       V148, V255, AR419
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48 Cards 1829 and 182910 have been added to check flying aircraft to see if they need a daily through Boolean variable 20.

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STATE APTER TOTAL CT SPLET 
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                                                                                                        10,40
                                                                                                                                                                                                                                                                                                                                                                                                                                            00143200
                                       PATSALTY
                                                                                                        90
                                                                                                                                                                                                                                                                                                                                                                                                                                           00183300
                                                                                                       . AAC
                                       TRANSPER
                                                                                                                                                                                                                                                                                                                                                                                                                                            00183400
                                                                                                        15.40
    48417 488134
                                                                                                                                                                                                                                                                                                                                                                                                                                            00183500
                                       VICE
                                                                                                        30
                                                                                                                                                                                                                                                                                                                                                                                                                                           00163600
                                       489134
                                                                                                        17.17
                                                                                                                                                                                                                                                                                                                                                                                                                                           00183700
                                                                                                        V169+,K1
                                        BAVEVALUE
                                       SAVEVALUE
                                                                                                        V170+. K1
                                                                                                                                                                                                                                                                                                                                                                                                                                           00193500
                                                                                                        450+,41
                                       SAVEVALUE
                                                                                                                                                                                                                                                                                                                                                                                                                                           00184000
                                                                                                      1050+,41
,48415
15,40
                                                                                                                                                                                                                                                                                                                                                                                                                                           00194100
                                        TRANSPER
                                                                                                                                                                                                                                                                                                                                                                                                                                           00184200
    ..... 489184
```

```
SAVEVALUE
                  V1514.41
                                                                                01199600
      SAVEVALUE
                  12.1255
                                                                                11149500
       SAVEVALUE
                   V1524.41
                                                                                01199600
      BLUEVALIE
                  9256.41
                                                                                01199700
SACKEL TEALS
                   51
                                                                                09199800
      DIT
                   24
                                                                                01149900
3 AT 459134
                   19,41
                                                                                01190000
       499134
                   17,441(+8,16)
                                                                                01190100
                   -9.-11.PL48
      TEST VE
                                                                                00190200
      499134
                   .41
                                                                                00190300
* A3
      45513V
                   1.441(+8,22)
                                                                                00190400
      TEST E
                   P17,41,PLAC
                                                                                22192500
                  .01,9LA4,9LAC
999,744,5
V13,9N2,PLAK
      FRENDER
                                                                                02190600
3 a:
      PREVER
                                                                                01190700
       TEST LE
                                                                                03190900
3 A4
      2070
                   17. TAX
                                                                                09190900
      459134
                   17.5
                                                                                01191000
      ENTER
                                                                                01101100
      ADVANCE
                   441(4,13)
                                                                                01191201
      TABLATE
TEST LE
TEST NE
                                                                                00191300
                  V13. PY2. PLAL
                                                                                00191400
....
                                                                                07191500
      ENTER.
3 4
                                                                                00191600
      SATE L'S
                  V14
                                                                                01191700
3.42
      45434E
                  54
                                                                                01111100
      -
                                                                               00191900
       JULTUK
                  3,73744,444,12,212
                                                                                00192000
      LEAVE LA
                                                                               00192100
                  V13,3644
                                                                               00195500
       14449554
                                                                                00192400
...
      LEAVE
                                                                                00192400
       TRANSFER
                  . 443
                                                                               00192500
3 44
      45513V
                  19,317
                                                                               00192600
      SACABL
                  29
                                                                                00192700
      459134
                  15,50149
                                                                               00192900
      TRANSPER
                  4 5 TA
                                                                                01192900
3 8
      49913V
                  19,017
                                                                               01193000
      BACABL
                  24
                                                                               01193100
      43913V
                  15.53L43
                                                                               00193200
                  27
      FRANSFER
                                                                               01193300
2 45
      VICE
                                                                               01193400
      BYC+3F
                  29
                                                                               00193500
      459134
                  15, 437
                                                                               00193500
                  3, *117
      LINK
                                                                               00193700
PLAS
      BACABL
                  27
                                                                               00193900
      455134
                  15.42
                                                                               01193900
      SPLIT
                  1.54:4.,60
                                                                               01194000
                  29
      VICE
                                                                               00194100
                  , 2640
      TRANSFER
                                                                               00194200
3 44
      VICL
                  29
                                                                               00194300
      TRAVSFER
                  PLAN
                                                                               00194400
```

W

- Cards 1973 through 1976 have been modified to tabulate flight time based upon input parameters in function 4 rather than based upon constants in the logic, as was the original case of the UH-1 model.
- 50 Card 1977 is a modification in the original logic of the model which accounts for airframe hours of the aircraft. This logic change is necessary to ensure that the total number of aborted test hop and mission flight hours are accounted for within the model.
- 51 Card 1994 has been modified due to the change in save value numbers generated by modifying the model to accommodate 24 aircraft.
- Cards 1995 through 2002 have been modified similar to the previous set of blocks to ensure that flight hour accountability is functionally dependent upon input function 4, rather than logically dependent upon constants equal to the mission length as in the UH-1 model. Furthermore, modifications were made to card 2001 to ensure proper accounting of all test hop hours on parameter 40 for each aircraft.

```
PICL PRIS
                          29
             TRANSFER
                          . . . .
                                                                                         00194500
      42437 499134
                          15.45
                                                                                         00194600
             BLJAVBVAL
                          V1510.41
                                                                                         05194700
             STABATOR
                                                                                         00194800
                          V152+.41
             SAVEVALUE
                          225+.41
                                                                                         00194900
             SAVEVALUE
                          925+, 41
                                                                                         00195000
             TRANSPER
                          PLAY
                                                                                         00195100
                                                                                         00195200
     ٠
                                                                                         00195300
                                                                                        00195400
                                                                                        00195500
                                                                                        00195600
                                                                                        00195700
     4
            FLESHT LOOP
                                                                                        00195800
                                                                                        00195900
      PIRA
             JOIN
TABULATE
                         26
                                                                                        00196000
      FIFL
                         2
                                                                                        00196100
             ENTER
                         V18
                                                                                        00196200
            TEST LE
                         P9, <5. PLTE
                                                                                        01196300
                         VI3, FY3, PLTC
                                                                                        00196400
            SAVEVALUE
                        V15+, <1.H
                                                                                        00196500
     7:73
            SSYAVES
                         ...
                                                                                        00196600
            455134
                         46. 4>37
                                                                                        10196700
            TEST 3
                         99,40.4R442
                                                                                        00196710
            SAVEVALUE
                        V1534,<1
                                                                                        00196800
            SAVEVALUE
                        2505.41
                                                                                        00196900
            SAVEVALUE
                        V1508.41
                                                                                        00197000
            SAVEVALUE
                        8501,41
                                                                                        00197100
                        V155. PN4
275. PN4
            SAVEVALUE
                                             TABULATE PLIGHT TIME
THESE LOGIC CHANGES
ARE 3000 FOR ALL SUCCESSIVE
                                                                                        00197200
            SAVEVALUE
                                                                                        00197300
            BOASAVENS
                        V156+, F44
                                                                                        00197400
           SAVEVALUE
                        875+, F44
                                                                                        01197500
                                             RUVS
           -48913V
                        40+, PN4
                                                                                       00197600
                                              CORRECT ERROR IN ACCOUNTING PAG
     . .
           LEAVE
                        V14
                                             SHUR THE ROY CCOR ST SEVEND SINT
                                                                                       00197700
            45913V
                                                                                       00197800
                        16.45
           TEST LE
                        PB. 49. PLT4
                                                                                       00197900
    PLTS
           SAVEVALUE
                        V17+, 41, H
                                                                                       00198000
           SAVEVALUE
                                                                                       00195100
                        110,41,4
           SAVEVALUE
                       7+, 41
                                                                                       00198200
           439134
                        11.05
                                                                                       00198300
           LEAVE
                                                                                       001-8-00
           PRIDRITY
                       20.5 IPPER
                                                                                       00198500
           PRIDRITY
                       .0
                                                                                       00198600
           464348
                       59
                                                                                       00199700
           340434
                       14
                                                                                       00198900
           TEST 3
                       P19,5,448
                                                                                       00198900
           435134
                                                                                       00199000
                       14,7445
           TRANSPER
                       . 244
                                                                                      00199100
   SAMES SAVEATOR
                       V205+. K1
                                                                                      00199200
(B)_
         - SAVEVALUE
                       775+, <1
                                                                                      00199300
          SAVEVALUE
                       V207.,FV4
                                                                                      00199400
                                            BENERALTIE ACCOUNTING OF
                                                                                      00199500
```

- 52 Cards were modified to generalize flight hour accounting.
- 53 Card 200910 was added to flag aircraft that have flown, with a negative 720 in parameter 46.
- Cards 2011 through 2016 have been added to the original logic to the UH-1 model to ensure that an aircraft which has just received a test hop and has aborted this test hop is routed properly and does not go into the PMI or PMP routine again.
- Cards 2018 and 2019 have been modified to make sure that the flight hour accounting on aborted flights is functionally dependent upon input function table 4 rather than dependent upon a constant specifying the aborted mission length. Variable 18 takes the value for the mission length input through function table 4 and divides it by 2. An aborted flight will, therefore, take one half of the function 4 value rather than just having a constant built into the logic.
- Cards 2020 and 2021 have been modified due to the change in save value number generated by increasing the model size to 24 aircraft.
- 57 Cards 2022 through 2025 have been modified to generalize accounting of aborted flight hours.
- 58 Cards 2026 to 2031 have been modified to generalize the model tests for PMP and PMI aircraft.
- 59 Card 203410 was added to flag aircraft that have flown, with a negative 720 in parameter 46.

```
TEST HOP FLIGHT HOURS
      SAVEVALUE
                   500+.P44
                                                                                01199600
       SAVEVALUE
                   1>...CV
                                                                                00199700
                   1375+, 41
       SAVEVALUE
                                                                                01199800
       SAVEVALUE
                   4500+ . LAG
                                       THIS CHANGE IS GOTO FOR ALL
                                                                                01199900
       SLIAVSVALJE
                                SIRSEBUENT RUNS
                   1400+ . FY4
                                                                                00000500
                                           ACCIUNT FOR TEST HOPS ON P40
      -433134
                   80+, 644
                                                                                00200100
      TRANSFER
                   . . . .
                                                                                00200200
PITC
       TEST LE
                   VIS, PNS, PLTJ
                                                                                00200300
                   17.6
       455134
                                                                                01200400
                   , , , , , ,
       TRANSFER
                                                                                00200500
PURJ
       499134
                   19.7
                                                                                00200600
       PSTEVAFT
                   . 499. FLTF. FLTE
                                                                                03203700
* | F
                   4. FL TB. 1. 8. PS
       JAFEAK
                                                                                00200500
                                                                                00000500
       SONANCE
                   V15
       499134
                   46. 4237
                                                                                01200910
                                   POLLOAINS CHANS! GOOD FOR ALL RUNS
                                                                                00201000
       TEST Q
                   P9, <0, 4LHS
                                       SAUL 1831 GELECEN BINCH
                                                                                00110500
       TEST L
                   V187. V234, HL 421
                                      STINERAL SHITLE INSURES
                                                                                00510500
       TEST L
                   111.4530.4FHS1
                                           TEST POR CALENDAR PHP
                                                                                01510500
                   V148. V235, HLH21
       TEST
                                       VA BUICC TENIADA
                                                                                00210500
                   . 4FHSS
       TRANSPER
                                           VA NC ING APTYS
                                                                                00201400
 WE1 459134
                                           ABORT. FISHT AFTER A
                   35, 999
                                                                                00201500
4 HER SAVEVALUE
                   17.4605v
                                           PHT. 3000 FOR ALL BUNS.
                                                                                00201400
       SAVEVALUE
                   1204041
                                                                                00710500
                                       GENERALIZE ACCOUNTING OF ABORTED PLISHT TIME
       SAVEVALUE
                   014.4015v
                                                                                00211400
       SAVEVALUE
                   V?11++V18
                                                                                00201900
       SAVEVALUE
                   1450 .. <1
                                                                                000202000
                                CHANSES ARE SOOD FOR
       SAVEVALUE
                   1500++<1
                                                                                00202100
       SAVEVALUE
                                ALL SUBSEQUENT PLUS
                   1475+, 418
                                                                                00550500
       BAVEVALUE
                   1399 .. V19
                                       ALL SUSSERUENT RUNS
                                                                                00250500
                                       SA NO SEM CETEDER PC THECODA
      -489134
                   40+, V19
                                                                                00202400
       PRICHAPT
                                       CHANGES 3000 FOR ALL' RUNS
                   . FLT4
                                                                                00202500
       SAVEVALUE
                   1954.41
                                  PORCH TEST CETROBA .C.
                                                                                00650500
       499134
                   40+, 415
                                       GENERALTEE
                                                                                00750500
       TEST L
                   V147. V234, HL 45
                                       EVITALCOOM
                                                                                00850500
       TEST L
                   V11, V236, HLH3
                                           TEST FOR CALENDAR PMP
                                                                                01850500
                   V145. V235. HLH5
       TEST L
                                       CHIRCRA PC
                                                                                0020200
      TRANSPER
                   PLTA
                                       TEST 4395
                                                                                00213000
                   35, (999
       433134
                                                                                01213100
       TRANSFER
                   . FLT4
                                                                                00260200
. . .
       SPLIT
                   1,9454,.60
                                                                                00203700
       BOVANCE
                   441 (7.13)
                                                                                00201400
       43313V
                   96. 4737
                                                                                01203410
       435134
                   40+,441(7,13)
                                                                                00203500
       >944
                                                                                00223600
       499134
                   50,46
                                                                                00760500
       TRANSFER
                   FLITA
                                                                                00203400
TETER ASSIST
                   9.40
                                                                                00203900
       BATE LA
                   1.444
                                                                                00000500
       VICL
                   34
                                                                                00190500
       STAP
                   •
                                                                                00200500
       ENTER
                                                                                00206300
                   1
       SATE LS
                   19
                                                                                00204400
       SPLET
                   1,79749,,60
                                                                                09294500
       LEVE
                   3, " ( " )
                                                                                00204600
```

-

60 Card 2092 has been generalized by using a save value in the shift control logic rather than a constant.

```
TATHS TEST E
                   345.1.TST4C
                                                                                00204700
        BOVANCE
                   . 1 7
                                                                                00000500
 TOTHS JULING
                    3. TSTHA. ALL
                                                                                00000500
        TERNINATE
                                                                                01215001
 79744 44RC
                                                                                01205100
        PRANCES
                    . FLTI
                                                                                00205200
 JULE TRAVERE
      TRAVEFER
                   3,21
                                                                                2225302
                   5-, 44
                                                                                99205400
        FRENERT
                   PLTS
                                                                                00215501
                                                                                01215500
•
                                                                                007205700
      *391 PLT341 100*
                                                                                01205400
4
                                                                                01215900
 2745
      TEST E
                   217, 40, PFAF
                                                                                01216010
 3745
       TEST E
                    AVZ. (1, PFAA
                                                                                00205100
        455134
                   17,412
                                                                                01515500
        JITY
                   24
                                                                                01215300
        459134
                   15.42
                                                                                01215400
        TRANSFER
                   337, LT4.5
                                                                                01215500
        342434
11 1631
                    29
                                                                                01215600
                   V13. P42. PF45
                                                                                01205700
 3785
        LAVABLES
                   . . . .
                                                                                01205400
 3785
        439134
                   14, SOFAE
                                                                                01205900
        TRANSFER
                    . : 44
                                                                                01217100
 ....
        69913V
                   15.8445
                                                                                01217100
 3945
        45513Y
                   17,11
                                                                                01217201
        VICL
                   35
                                                                                01217500
        TRANSPER
                    997, 44.5
                                                                                01217401
        364316
                                                                                01217501
                   35
        TRANSFER
                   2.19
                                                                                01207401
 3743
        45913V
                   17,12
                                                                                11217701
        439134
                   16.41
                                                                                01217400
        45513V
                   15, 82745
                                                                                00970500
                                                                                01215000
        TRANSFER
                   . 544
                                                                                01219101
                                                                                00560560
•
                                                                                00560500
                                                                                01219400
                                                                                01215500
. PREVENTIVE MATHTENANCE ROUTING
                                                                                01215400
                                                                                01215701
    BRITUCERLE VCITSSERI VIIAC
                                                                                01215400
•
                                                                                00560200
       ********
                                                                                corecto
 7.CA
                   4.0
        459134
                   2.481(1.3)
                                                                                colenseo
        TEST SE
                   25.41.9463
                                                                                005919200
                                                                                10561510
        STANCE
                   4x1(1.2)
-47436 459134
                    3, 1172
                                                                                032 19303
                                                                                00060500
                                        C4-47:
 73, C
                                                                                01219500
      SATE LA
                   1.3650
        JATTAC
                   1. DLR. ALL
                                                                                01219501
        J46144
                                                                                00790500
                   4. JLA. ALL
```

- 61 Card 2100 has been generalized by using a save value in the shift control logic rather than a constant.
- 62 Card 210201 has no impact on the present model.
- 63 Cards 2111 and 211110 have been added for the daily inspection test. Mark 46 puts the present time in parameter 46 of the aircraft currently at this spot.
- 64 This change to Card 211510 is necessary for proper activation of the daily routine.
- 65 Cards 2122 and 2123 have been added to ensure that an aircraft that is in the daily routine and has just previously come from an intermediate inspection will not erroneously go back to the intermediate inspection routine.

```
433134
                       14.40
                                                                                   00209000
    JUEE
           SSPANCE
                       .5
                                                                                   00209900
           LOOP
                       3,769
                                          CH-475
0-
                                                                                   10000500
           ADVANCE
                       X193
                                                                                   00210000
               ON THIS CARD FOR OTHER THAN A 7 3 Y HEEK USE ADVANCE 480
                                                                                   00210100
           TRANSPER
                       .49456
63-
                                                                                   00216200
           SUPPER
                                           CH-475
                                                                                   10501500
           TRANSPER
                       . DLCS
                                                                                   00210300
    שבינכ
           489134
                       100,41
                                                                                   00210400
           TEST E
                       V21, <0, DLCE
                                                                                   00210500
           TRAYSPER
                       DLCO
                                                                                   00210600
    2.4
           ASSISY
                       16.40
                                                                                   00210700
           SVCF3F
                       27
                                                                                   00801500
           LEAVE
                                                                                   00901500
           433134
                       19,40
                                                                                   00211000
   ノン・B
           TEST BE
                       V239,720,0L82
                                                                                   00211100
           394
                       46
                                                                                   0111110
          ASSIZV
                       17.16
                                                                                   00211120
          SYCHAP
                       20
                                                                                   00511200
          455134
                       16,40
                                                                                  00211300
          48813V
                       15,2
                                                                                  00211400
          TRANSPER
                       HJC
                                                                                  00211500
6}->;|∎≥
          FEAC
                       1. 7100
                                                                                  00211510
   JUE
JUE
          ASSIBY
                       17,416
                                                                                  00211600
          TEST LE
                       P24,411(4,10),RLARA
                                                                                  00211700
          VICL
                       33
                                                                                  00211800
          TRANSPER
                       394, [[4.5
                                                                                  00211900
   סבכ
          ADVANCE
                       <0
                                                                                  00051200
          SACHSE
                       33
                                                                                  00212100
          TEST 02
                                  PLC LOGIC CHANGE TO FLAS ATROPAPT THAT HAVE JUST HAD A PHI
                       V148, V235, DLC
                                                                                  00212200
          459134
                       35, 999
                                                                                  00212300
   שנב
          TEST 2
                       VIB, PYZ, AAB
                                                                                  00212400
          499134
                      19,917
                                                                                  00212500
          ASSIBY
                      15.3448
                                                                                  00451500
          TRANSFER
                      . 244
                                                                                  00212700
                                                                                  00812800
                                                                                  0021200
      SHITUCHELE SOMMITHIAM BALL
                                                                                  00213000
                                                                                  00213100
   LEA
          SUSUE
                      P17
                                                                                  00213200
          433134
                      22.423
                                                                                  00213300
          433134
                      5.450
                                                                                  00213400
          TEST YE
                      P22. <0. LH4
                                                                                  00213500
          PRAP
                                                                                  00213600
          ENTER
                      450
                                                                                  00213700
          SUEUE
                      V27
                                                                                  00213800
   in!
Inp
                      SOLLHB
                                                                                  00213900
          455134
                      3, 429
                                                                                  000214000
          485184
                      4.40
                                                                                  00214100
   פאין
          TEST SE
                      8+3, P22, L46
                                                                                  00214200
          DEPART
                      V27
                                                                                 00214300
          DEPART
                      P17
                                                                                  00214400
         ENTER
                      15,122
                                                                                 00214500
          433134
                      50.452
                                                                                 00214600
         ADVAVES
                      650
                                                                                 00214700
         TEST VE
                      P17.42.48430
                                                                                 00214800
```

66 Card 2199 has been modified to generalize the model with respect to the number of TBO components per aircraft through use of save value 197 rather than a constant in the logic.

```
00214900
          TEST NE
                      217, (16, 49451
                      .3,222
                                                                                  01215000
   ARMS? LEAVE
                                                                                  01215100
          LEAVE
                       425
          TABLEATE
                                                                                  01215200
                                                                                  01215300
          494VEV4_UE 2+, #3, #17, V29
                                                                                  01215400
          94 / EVALUE 487+ , 424
                                                                                  00215500
          SAVEVALJE
                     >10.129
                                                                                  00215600
          JY_ 1 44
                       VSS, INLK, ALL
                                                                                  01215700
          TRANSFER
                      P.3.1
                                                                                  01215400
   19437 94VEVA: JE
                      V157++<1
                                                                                  01215900
                      3104,41
          SUJAVSVAR
                                                                                  01215901
          SAVEVALUE
                       $774,41
                                                                                  01215000
          344244112
                      V1534.41
                                                                                  01215100
                      2116,41
          SAVEVAL IE
                                                                                  00216200
          SE JAVEVAR
                      V157., V191
                      525+, 4191
                                                                                  01216300
          SAVEVALUE
                                                                                  215400
          SLJAVEVALJE
                      V1474, V191
                                                                                  01215500
          SAVEVALUE
                      725+. V171
                                                                                   00215500
          TRAVALES
                       . 43465
                                                                                  007815700
   ARMST SAVEVA. JE
                      V1514.41
                                                                                   00215400
                       3504.41
          SAVEVALJE
                                                                                   01215900
          SAVEVALUE
                       V1528.41
          SAVEVA JE
                                                                                   00071500
                       3554.41
                                                                                   0017100
          34 / 2 / 41 15
                       V153., V191
                                                                                   01217200
          SAVEVA_JE
                       375+, V1 91
                                                                                   00217300
          PAVEVAL JE
                       V154.. V191
                                                                                   00217400
          SAVEVALUE
                       375+. V14:
                                                                                   09217500
                       . 43432
          TRANSPER
                                                                                   2217600
   LAB
          459134
                       5. V27
                                                                                   00771500
          45513V
                       4 . 1
                                                                                   00217400
          TRANSPER
                       . 143
                       21.9.42
                                                                                   00217900
   ing.
          455134
                       23, 547
                                                                                   00061500
          ASSIBN
          1144
1597 5
                                                                                   001215100
                       v51, =23
                                                                                   00215200
   ्यह
                       P15,40,641
                                                                                   01219300
                       25, (1, 64)
          TEST WE
                                                                                   00215400
          TEGT HE
                       217, 41,642
                                                                                   01215500
          TEST 3
                       41, 549, 41
                                                                                   01215600
    <u>_</u>'MN
          TEPART
                       V27
                                                                                   00219700
          752437
                       317
                                                                                   00881510
          SAVE
    M
                       135
                                                                                   01215900
                       24
                                                                                   00091500
                       . 443
          TRANGER
                                                                                   01219160
          752447
                       217
    ુંત્રમ
                                                                                   005919200
          FRENERS
                       3,5,1
                                                                                   01219300
    · NB
          TEST 3
                       437, 544, 641
                                                                                   00219400
          TRANSFER
                       . L 44
                                                                                   01219500
                                                                                   00491560
         SALITERER THE CHE
                                                                                   01219700
                                                                                   00219800
                                                                                   00219900
69-48419 49913V
                       12, 11 97
```

of the Parket Sec.

-

67 Card 2200 has been generalized by use of save value 189, rather than a constant in the program logic.

68 Card 220010 has been added to zero out aircraft time since last calendar PMP.

Cards 2226 through 2236 have been modified or added to the original UH-1 logic to allow for the detection of Cailures at the intermediate inspection and to do away with test hops after the intermediate inspection. This logic is consistent with the baseline HLH and CH-47 maintenance concept. The maintenance concepts for the UH-1 model used in the baseline Government model did not provide for the detection of maintenance at the intermediate inspection.

```
OLINER TEST &
                      VIAP, X189, ARMEN SEMERAL
                                                                                 00005510
                      AT. O ZERO DUT TIME SINCE LAST CALENDAR INSP.
         _ 439134
                                                                                 01005500
   SONANCE YOF
                      12.48422
                                                                                 00105500
                                                                                 00550500
   VTIRCIPE ESPEA
                      20.8 IFFER
                                                                                 0020300
          MARK
                                                                                 00220400
          49913V
                      35,909
                                                                                 00220500
          499134
                      26.40
                                                                                 00905500
          49313W
                      15.2
                                                                                01220700
          VEICE
                      51 . 3 A 4 C H
                                                                                0022000
                      25. 747
          499134
                                                                                00220900
          499134
                      2.40
                                                                                00015500
         SPLIT
                      1.0467..60
                                                                                00115500
          JULE
                      P17
                                                                                00221200
                      426
          ENTER
                                                                                00221300
          TPASSC
                      P17
                                                                                00221400
          SPLAT
                      1.0400..60
                                                                                01221500
         SPLIT
                      1, PHER, . 60
                                                                                00221600
   9464
         489E4BLE
                      13
                                                                                00221700
          PRIDRITY
                      ..
                                                                                00221900
         LEAVE
                      450
                                                                                00221900
                      3
                                                                                000252000
         SVC+3F
                     30
                                                                                00155500
          SYCHE
                      37
                                                                                00555500
         TEST VE
                     917,417,P4CZ
                                                                                00555500
         TEST E
                      P17, 48, 48433
                                                                                00222400
   ARMSS SPLET
                      1.4568
                                                                                00222500
                                         PUT IN COSIS TO
DETECT PAILURES AT
         TEST LE
                      V13, PH2, HLH1
                                                                                00022260
         499134
                      27,49
                                                                                00222700
         -TEST E
                     P20, 40, RLARA
                                         ERCH TEST HTTH YAHA CC CHA IPE
                                                                                00222400
         -TRANSPER
                     , 449
                                         AFTER PHI. STOD FOR ALL RUNS
                                                                                0055500
                      V13, P42, P468
   PHEMA TEST LE
                                                                                00223000
         TEST E
                     P24.40.PHCT
                                                                                00223100
         TRANSFER
                      . 4993
                                                                                00552500
   4CH1
         499184
                     19,017
                                         CHANGES TO ALLOW FOR
                                                                                00223300
                                         UNSCHEDILED MAINTENANCE
         VETERA-
                     25.41
                                                                                00223400
        -43513V
                     27.40
                                         TEST HTIN YARA CO CT CVA.TM TA
                                                                                00223500
        - TRANSPER
                     APS.
                                         HOPS. 3000 FOR ALL RINS
                                                                                00553600
                     1.9544..60
   946 Z
         SPLIT
                                                                                00223700
         TRANSFER
                     PHENA
                                                                                00223800
   8390
         ASSIDY
                     10, 217
                                                                                00553400
         43313Y
                     25, <1
                                                                                000224000
         483134
                     27.41
                                                                                00185500
         TRANSFER
                     . CHA
                                                                                00585c0
   1320
         VETERA
                     27,41
                                                                                00224300
                     . 41444
         TRANSPER
                                                                                01224400
   PIÈP
         LENG
                     27. 7773
                                                                                00224500
         SSVAVCE
                      4X1(1, V32)
   6340
                                                                                00405500
         JULTUK
                     27,9432,1,14,913
                                                                                007224700
                     . P464
         TRAVSPER
                                                                                00224800
   8310
         SPLET
                     10, 5400, 2,60
                                                                                00005500
   PHEU
         433134
                     3,4x1(V33,42)
                                                                                01225000
```

1

```
TEST GE
                  33, <1, BYCY
                                                                              00225100
      439134
                   4.441 (V54,+2)
                                                                              00552500
                  217,49,48430
      TEST E
                                                                              00225300
      SAVEVALJE
                  V1570, V36
                                                                              00225400
      SAVEVALUE
                   V1540. V36
                                                                              00555500
      SAVEVALJE
                  423+. V35
                                                                              00225400
      SULAVENALUE
                  17250. 454
                                                                              09225700
     SATE LA
34CV
                   V>7
                                                                              01225900
                  27,2451
9464
                                                                              01225900
                  7. 424
      45513V
                                                                              00065500
      VEIPEA
                  20.415
                                                                              01225100
      49913V
                                                                              00255500
                   9.1
      TEST 52
TEST L2
3464
                  707,23.04CL
                                                                              00226300
                  P4, P20, P454
2463
                                                                              00845500
9463
      TPASS
                  V27
                                                                              01236500
                  47,23
      ENTER
                                                                              01226600
      ADVANCE
                  ..
                                                                              007276700
      LEAVE
                  47,21
                                                                              00225900
      JYLTY
                  PT. JYLY. ALL
                                                                              01225900
      434 EVALUE 24. 27. P17. V35
                                                                              01227000
      SAVETALJE
                  V$7+, V$5
                                                                              01227100
      SAVENILJE
                  320,435
                                                                              01277200
      TEST E
                  224, (3, 24CP
                                                                              00227300
                  , 3454
      FRENDET
                                                                              01227400
                  21-7, 417, P4CV
A TEST E EPF E
                                                                              21227502
      SAVEVALUE
                  V171+. V36
                                                                              01227600
                  V172+, V36
      BULLANDANE
                                                                              01227700
      SAVEVALUE
                  475+. V35
                                                                              01227900
      SAVEVALUE
                  1075 .. . 34
                                                                              01227900
                  , . . . .
      TRAVSPER
                                                                              00065510
1461 49913V
                  7.427
                                                                              01225100
      45513V
                  3, 40
                                                                              00255200
      499134
                  PFV.05
                                                                              01225100
      T4445F24
                  , 94: (
                                                                              01225400
P464
      VE1884
                  22, 437
                                                                              01225560
                  9.024
                                                                              11275600
      459134
      439134
                  24,41
                                                                              275566
      TEST E
                  24, <1, 2467
                                                                              01223401
      TEAST
                  v ? 7
                                                                              009255C
      43913V
                  1.323
                                                                              00065210
                  1.330FER
      *****
                                                                             00162510
      ALICLIEC
                  50
                                                                             00262560
                                                                             01556200
      49913V
                  25, (1
      TRAVAFER
                  . 04:4
                                                                             00227400
24CL LTN4
44M28 32LTT
                  27,223
                                                                             01229500
                  1.42420
                                                                             00958600
      TRAVSFER
                  14471
                                                                             00229700
                                                                             00229990
                                                                             00229900
     BUTTLEFUE THAMPHITER, JUANSUC BENAME SHIT
                                                                             00233000
                                                                             01230100
```

70 Card 2302 has been modified due to the expansion of the model to accommodate 24 aircraft.

71 Card 2323 has been added to the original logic of the UH-l baseline model. This block ensures that the values calculated in certain save values are proper. The original model was defined without this block. Whenever more than 10 maintenance actions were generated simultaneously, the accounting of these maintenance actions overflowed into save values which were used for other functions such as monitoring the engine changes, the maintenance actions determined at turnaround inspections, etc. It is felt that this block is extremely critical to the proper actuation of the model. Since not having this block in the model allows for erroneous tabulation of results, a great deal of effort can be expended to find out why the model is accounting for engine changes when the maintenance concept does not call for scheduled engine changes.

```
01213200
@-18427 45913V
                                                                                 01230300
                      22,446(27,912)
          454744 18 5,412,417,4179,4
17,1
                                                                                 01250400
                                                                                 01230500
                                                                                 01230600
          45913V
                      5.7
                      25, (135
                                                                                 01230700
          433134
                                                                                 01230500
          45913V
                      17,19
          +54 VEV4 JUE 50. V 65. 46. 41. 4
                                                                                 00002500
                                                                                 01231000
                      V175++41
          SAVEVALUE
                                                                                 00117510
          SAVEVALUE
                      525+.41
                                                                                 00211200
          SETTANANT
                      V176+, <1
                                                                                 01231300
          SAVEVALUE 1125++41
                                                                                 00231400
                     , APAA
          TRAVAFFR
                                                                                 00218500
                                                                                 01231600
                                                                                 00231700
                                                                                 01231800
   ٨
                                                                                 00231900
    PATEURE DETERMINATION POUTINE
                                                                                 007232000
                                                                                 001575cn
                      CV 1.5
    :44
          45513V
                                                                                 00232200
          TABULATE
TEST LE
0
                      PRICED AND A VIENED TO ENGINE PROPER SAVEVALUES
                                                                                 00232300
                      OPUCA SET THEN TO HE S THE LOND
                                                                                 00232400
                                                                                 00232500
                                                                                 10057500
   ٠
          SAVEVALUE V40+. <1.H
                                                                                 00232700
                                                                                 00232800
    . >4
          45513V
                      1>,+85
                      3. 4415
                                                                                 00525600
          49913V
                                                                                 00233000
          TABULATE
                                                                                 00233100
          TABULATE
          SAVEVALJE
                                                                                 01243200
                      V173+,41
                                                                                 00233300
                      500+.41
          SAVEVALJE
                                                                                 01233400
          SLIAVEVALUE
                      V174+, <1
                                                                                 00233500
                      1100++41
          SAVEVALUE
                                                                                 00233400
                      V41+, <1.H
          SAVEVALUE
                                                                                 00233700
          499134
                      4, (23
                                                                                 00273900
          SAVEVALUE
                      1.942
                                                                                 00233900
                      5,7422
          VEIRE A
                                                                                 00234000
          HOLISS BULLYANDAEL
                      25. 445
                                                                                 20234160
          439134
    138
                                                                                 00234200
                      P5, <1, 4945Q
          TEST NE
                                                                                 00234300
          494VEVALUE 2+,2.1,PNO4,H
                      41,442(2,1),770
                                                                                 00234400
    ARMSS TEST LE
                                                                                 00234500
          TABULATE.
                                                                                 00234600
                      1.724..60
          SPLTT
                                                                                 00234700
                      P19, 47, FOL
          TEST E
                                                                                 00234800
          439134
                      19.6
                                                                                 01234400
    *20
                      25,41
          ASSIBN
                                                                                 00235000
          LODP
                      2. 704
    POF
                                                                                 00235100
                      P25.41.FD4
          TEST E
                      SVIB. 1, RLARA
                                                                                 00235200
          TEST E
```

72 Cards 2376 to 2377 have been generalized in the manner previously discussed to allow the tests for the PMP and PMI inspections to be functionally dependent upon variables 234, 235, and 236 which are subsequently dependent upon input parameters save values 189, 190, 195, and 196. Thus, modification of these blocks adds generality to the model and provides functional input dependence, rather than logical dependence upon constants within the model.

```
JULTUK
                    4.42437.1...43439
                                                                                01215100
       SPLIT
                   1.47440.,60
                                                                                01215400
 42439 TEST E
                    219,45, RLANA
                                                                                01235500
        SAVEVALUE
                    33+ . <1
                                                                                00275500
        TRANSFER
                    . 3: 494
                                                                                01235700
 *22
       POJ.
                    5, 779
                                                                                11245600
 FOL
        TEST E
                   919,45,FDP
                                                                                01235900
                    945, #430, POC
       TEST G
                                                                                00047500
       SATE L'S
                   1, 17
 TOR
                                                                                001215100
                   . ...
        TRAVAFER
                                                                                01235200
 FIN
       TEST NE
                    P27, <1, FD4
                                                                                01235300
       499134
                   25.40
                                                                                00245400
       459134
                   19, <0
                                                                                00245500
       TRANSFER
                   .15
                                                                                01235600
 FOK
       FRAK
                    32, FTF3
                                                                                00235700
       H.PPF.1.5.5 BULAVEVAEN
 48452
                                                                                01235500
                   .43455
       TRANSPER
                                                                                01235901
 194
       455134
                   27.45
                                                                                01237000
       TEST E
                   P$5, 279, A7456
                                                                                01237101
       455134
                   35,0
                                                                                01237200
        TRANSFER
                   . 75749
                                                                                01237300
       TEST L
 *2
                    943, 4135, FDF
                                                                                01237401
        TRANSPER
                   , F):
                                                                                00237500
                   VIUT, V230, ARMIT GENERAL)
VIII, V230, ARMIT TERT FOR CALENDAR PHP
 ARMSS TEST L
                                                                                01237401
       TEST L
                                                                                01237610
                                        GENERAL
       TEST L
                   V144, V235, AR419
                                                                                01237700
       TRANSFER
                   ,19140
                                                                                01237900
                                                                                00237900
•
                                                                                000255000
                                                                                01235100
                                                                                01234201
SMITHTELE TORRES CHA METRACH FIARSS A
                                                                                01239300
                                                                                01233400
 MICL APRES
                                                                                00288500
                   219, 45, RLAPS
       TEST E
                                                                                00005500
       LEAVE
                                                                                01235701
 2 1831 E
                   PIA. (1, PLARS
                                                                                01235500
       SPLIT
                   1.5454,.60
                                                                                0092550
 4 44: TEST E
                   541. 41. 4LARD
                                                                                00057500
       45513V
                   15.39LARK
                                                                                01237100
       TRAVSPER
                   FARE
                                                                                01259200
 SEAL CER'E
                                                                                01247500
 REST E
                   SV2, <1, PLARE
                                                                                00052500
                   SV7, 40, RLARE
       TEST E
                                                                                01545201
       45513V
                   15, 444
                                                                                01237500
       TEST L
                   P15.441(4.2), 36436
                                                                                01232700
       499134
                   15,441(4,2)
                                                                                0025500
SOURVER - PRIF
                   919
                                                                                2123900
       SAVEVALUE
                   $90.41
                                                                                00000560
 ATTRETARE SENTE
                   SU. SIFFER
                                                                                2221100
       PRIDRITY
                   90
                                                                                casarsen
       JATZA4
                   32, J944, ALL, 13, 214, 449
                                                                                01240300
```

73 Card 2451 has been modified to make the NORS test a greater than rather than a less than or equal to as originally employed.

```
433124
                   20,4123
                                                                              01243410
       488124
                   1>,+05
                                                                              00200500
        SVCFSF
                   35
                                                                              00240400
                   1.4644..60
        SPLET
                                                                              007045700
        TRAVSPER
                   ARRA
                                                                              00220900
 PIRCIPS PREST
                   110. SUPPER
                                                                              00909500
       SPLIT
                   1. PLB 46. . 60
                                                                              00241000
 PIERP JOTY
                   35
                                                                              00110500
       439245LE
                   .24
                                                                              0021200
       SAVEVALUE
                   V187++11
                                                                              01241300
                   17.4554
                                                                              00241400
       SAVEVALUE
       SAVEVALUE.
                   V156+, 41
                                                                              00241500
       SAVEVALUE
                   1225+,41
                                                                              01241600
       SAVEVALUE
                                                                              01741700
                   35+, 41
       SAVEVALUE
                   V195+, 41
                                                                              97241900
       SAVEVALUE.
                                                                              22241900
                  675+,41
       SAVEVALUE
                   V1944,41
                                                                              00054500
                  1275++41
       SAVEVALUE
                                                                              001505100
                   40,16,P14,,.R_MR4
       SCAN
                                                                              00528500
       SACHBE
                   35
                                                                              01232300
       PICL
                   31
                                                                             01242400
 REARY MATCH
                   SPLATP
                                                                              00242500
       TERMINATE
                                                                              00059510
 PLARS JOIN
                   43
                                                                              00245700
       ASSEABLE
                   154
                                                                              00242400
       SAVEVALUE
                  36+, 41
                                                                             00202000
                   40 40
       SVC+3P
                                                                              000243000
 POTAN HATCH
                                                                              01243100
       131 '
                   35
                                                                              00269200
 PURRS HATCH
                   SARRI
                                                                              0026200
 STANTHEST HARE
                                                                              01243410
                                                                              01243500
                                                                              00243600
                                                                             007243700
•
                                                                             00243500
                                                                             02243900
٠
                                                                             01244000
         REPAIR PART ARSESSMENT SUSPOUTINE
•
                                                                             00184500
       ALIBETEE
                   BO, SJFFER
                                                                             00244200
 JSHA
       PPAP
                                                                             00244300
       433134
                   15.40
                                                                             01234400
                                                                             00288500
                   25. V45
       433134
                   . +25, RPAD, RPAA
9745
       TRANSPER
                                                                             0020000
                                                                             09244700
4244
       BOVANCE
                   4X1(4,8)
                                                                             00244400
       49913N
                   25, <1350
       484 VEVALUE 5+, 446, 2, 1,4
                                                                             01244900
                                                                             01245000
       SAVEVALUE 175+, <1
       -TEST 3
                   V13, P439, VDRC4
                                                                             01245100
                  , 4944
 3445
      TRAVSFER
                                                                             01245200
 2245
       ASAVEVALUE S+, VAb. 1, 1, 4
                                                                             01215300
                                                                             01245400
       SAVEVALUE 176+.41
```

```
٠
                                                                             01245500
                                                                             00245600
    TATTUCERLE THERESERA SECTION
                                                                             11215700
                                                                             01745900
 4344
      49913V
                   1.43
                                                                             01245500
                   V47, E439
 4243
       459134
                                                                             01215000
       TEST E
                   225,1359,4441
                                                                             2225100
       459134
                   V51. FV41
                                                                             11246200
       TRANSPER
                   .484>
                                                                             01245300
 1454
       499134
                   V51. F455
                                                                             2225400
      しいつき
                   1,4049
 1345
                                                                             995600
                                                                             01245511
                                                                             01215700
    BALLCEELD ELLE
4
                                                                             01215400
                                                                             11245911
 4345
      TEST E
                   P25, 41359, A344
                                                                             01217000
 4794
       455134
                   4. 455
                                                                             01247101
                   . 4944
       TRANSFER
                                                                             00547200
                   2, 4138
       ASSIGN
 ....
                                                                             01247300
 1445
       TABULATE
                   9
                                                                             01247400
       TEST L
                   93,42,39EA
                                                                             01217501
       45513V
                   4. (>
                                                                             01247501
                                                                             00247700
    SSE SUBROUTINE
                                                                             01247400
                                                                             01247900
 39FA
       TRANSFER
                   , JYSA
                                                                             00068510
 3959
       45913V
                   1. 457
                                                                             01245101
       ADVANCE
                   P1
                                                                             01245200
       SAVEVALUE 37+, 21
                                                                             00249300
                                                                             01245401
.
                                                                             01244500
                                                                             01219400
                                                                             01235700
SHITHER SCHAMBINIAM COULCEMERNE .
                                                                             00545500
                                                                             11245911
 IN TEST APPL
                   317, (19, ARM25
                                                                             20066560
       45513V
                   17, (23
                                                                             01247101
 ARMES TERT E
                   B27, (), J458
                                                                             01249200
 J493 499134
                   3,223
                                                                             01249301
       45513V
                   2,024
                                                                             00549400
       499134
                   25,41
                                                                             01249500
 JUSK
       STEAL
                   V27
                                                                             00249400
       BUSTE
                   25
                                                                             01249701
 JUSE
       SATE LR
                   SEVL, OS
                                                                             COPFECO
                   7.429
       ASSI34
                                                                             COPFBSCO
                   20,455
       455134
                                                                             01250001
       43313V
                   9,1
                                                                             01250100
 JYSD
       TEST SE
                   447,25,UNSP
                                                                             01250200
       TEST LE
                   24, P20, J45F
                                                                             01250300
 JVSS
       TEPART
                   V27
                                                                             00250400
       TEAAT
                   25
                                                                             00252500
```

```
ENTER
                   47.25
                                                                                00250600
       SOPANCE
                   94
                                                                                00250700
       TEST VE
                   5V17, <1, ARM14
                                                                                00250500
                   47,23
                                                                                01251900
ARMIS LEAVE
       JYLTYK
                   P7. JULK.ALL
                                                                                00251000
       4544544LUE 2+, 42. 817, 436
                                                                                00251100
                   P17, <19, 48410
       TEST ME
                                                                                00251200
ARMET SAVEVALUE
                   V554. V36
                                                                                00251300
       SAVEVALUE
                   49+, 436
                                                                                00251400
       SAVEVALUE
                   V157+. V36
                                                                                00251500
                   575+. V36
       SAVEVALUE
                                                                                00251600
       SAVEVALUE
                   V170+, V36
                                                                                00751700
       SAVEVALUE
                   11750. V36
                                                                                01251900
                   P12, <1, 48457
       TEST VE
                                                                                01251900
       45AVEVALUE 5+, VA5, VR9, V35
                                                                                00052500
ARMSS TEST E
                   MEPL, 03, 450
                                                                                00252100
       TEST NE
                   #5. 4999, CAVY
                                                                                01252200
                   915,1,CA44
                                                                                01252300
       TEST E
                   225, (1359, UVS_I
                                                                                00252400
       SPLIT
                   1,1444,,60
                                                                                00252500
       45513V
                   17, (21
                                                                                00057500
      TEST LE
                   414, FY2, H344
                                                                                00252700
                   P19. (0, JN54
JYSL
                                                                                00252800
       SPLTT
                   1, 31497.,50
                                                                                00252900
       9211
                   1, RL486. . 60
                                                                                00253000
      TRANSFER
                   ASSA.
                                                                                001273100
PRIVL
43413 4344EV4_UE 5+, V85, 46, V38
                                                                                00253200
       SAVEVALUE
                   4555+ 439
                                                                                00253300
       SAVEVALUE
                   550+, 436
                                                                                00253400
       SAVEVALUE
                   V223+, V36
                                                                                00253500
       BULLAVEVALUE
                   1150 .. v36
                                                                                00253600
       TEST E
                   P75, (0, J454
                                                                                00757500
       TERMINATE
                                                                                00253800
JYSS
       SPLIT
                   1.JV9V,.60
                                                                                00253900
       TRANSFER
                   . JYST
                                                                                01254000
      45913V
                   3, (7999
JUSU
                                                                                00254100
       45513V
                   3.231
                                                                                00294200
                   2,327
       45513V
                                                                                00254300
       49913V
                   25, 41
                                                                                01254400
       TRANSFER
                   . JYSe
                                                                                00254500
BOVAVCE PLANT
                   213
                                                                                00254600
       455134
                   25.0
                                                                                01254700
                   4.017
                                                                                00254800
       433124
                                                                                01254900
                   119+,219
       SAVEVALUE
       TRAVSFER
                   ,42415
                                                                                00255000
                   7.427
                                                                                00255100
      49315V
IVE
      49316V
                   20, V39
                                                                                00552500
       435134
                   9.40
                                                                                00255300
       TRANSFER
                   , 1457
                                                                                01255400
JYSP
      ASSIGN
                   23. PY7
                                                                                00255500
       ASSIZA
                   31.8 J49E
                                                                                01255600
                   07,003
                                                                                00255700
      LENK
JUSE
      4351,4
                   19, 439
                                                                                00255900
      433124
                   6.925
                                                                                00255900
      459134
                   26,41
                                                                                00067500
```

74 Cards 2607 through 2608 have been modified in the manner previously discussed to ensure against improper activation of the PMI and PMP logic and also to generalize the test for PMP and PMI activation.

```
TEST E
                       24. <1. UNSS
                                                                                  00256100
           DEPLAT
                       V27
                                                                                  00256200
           754430
                       25
                                                                                  00256300
           PREDRITY
                       1. JUFFER
                                                                                  01256400
           TEST NE
                       P12. <1, AR411
                                                                                  00256500
           PRIDRITY
                       66.
                                                                                  00256600
    JYSH ASSISH
                       4,219
                                                                                  00256700
           433134
                       26,40
                                                                                  00256800
           TEST NE
                       V35.0.48459
                                                                                  00256900
           TEST E
                       P4, <0, UYS<
                                                                                  00257000
           TRANSFER
                       . UYSP
                                                                                  00257100
    VIISCISS 11PFA
                                                                                  00257200
           TRANSFER
                       . 4754
                                                                                  00257300
    43457 454VEVALUE 5>, VQ6, +6, V36
                                                                                  00257400
           TRANSFER
                       . 48445
                                                                                  00257500
    ARMSP SUEUE
                       ¥27
                                                                                  01257600
           JUEUE.
                       25
                                                                                  00257700
           SATE LS
                       20
                                                                                  00257800
           TEART
                       V27
                                                                                  00257900
           TFASSC
                       25
                                                                                  00075000
           TRANSPER
                       . JYS4
                                                                                  00255100
                                                                                  00255200
       STITUTED THE SEASE AND REASSEABLY SUBSTITUTE
                                                                                  01255300
                                                                                  00255400
    ARRA SATHER
                       954
                                                                                  00255500
                       90,5 JFFER
          PRIDRITY
                                                                                  00255600
          TEST VE
                       P20, <123, 4RRB
                                                                                  00255700
                       PB, 40, 4988
                                                                                 01259900
           TEST E
                       P444.1,4888
                                                                                 01258900
           TRANSPER
                       .533.4RRB,4RR4
                                                                                 00259000
    ARRH
          LOSICS
                       21
                                                                                 00259100
    ARR ASSEMBLE
                       124
                                                                                 00259200
          HATEH
    LAFA
                       STLARS
                                                                                 00259300
          499134
                       19,40
                                                                                 00259400
          433154
                       24.40
                                                                                 00259500
          459134
                       0>.05
                                                                                 00259600
          439134
                       25,40
                                                                                 01259700
          499134
                       16.40
                                                                                 00259800
    STAJUEAT SAFA
                                                                                 00259900
          SAVEVALUE
                      195+, V60
                                                                                 00260000
          TEST E
                      P27, 41, ARRD
                                                                                 00260100
                      27,40
          433124
                                                                                 00200200
          TRANSFER
                      . 4995
                                                                                 00260300
          SATE LS
   CRFA
                      21,499F
                                                                                 00260400
          LOSICA
   SPFA
                      21
                                                                                 00260500
          TEST NE
                      P35,999,4RRG
                      V187, V258, ARMIT GENERALI
V11, V258, ARMIT TEST FOR CALENDAR PHP
                                                                                 00260600
          TEST L
                                                                                 00260700
(3) =
         -TEST L
                                                                                 02240710
         TEST L
                      V148, V235, AR414
                                          BENERALI
                                                                                 00250800
   ARRO ASSISY
                      17,2
                                                                                 00250900
          7554
                      44
                                                                                 00241000
          43312N
                      5, 40
                                                                                 00261100
```

75 Card 2619 has been added to allow model activation without a daily inspection.

76 Card 2637 has been added to prevent off-shift maintenance.

77 Cards 2638 and 2639 have been added to provide accounting of NORS delay time.

```
TRANSFER
                     337, 14.5
                                                                                11251200
                                                                                01251300
                     V13, CV2, 4484
         TEST LE
         45913V
                     35.0
                                                                                01251493
                     . 79743
                                                                                01261500
         TRANGER
         SATE LA
TEST NE
                                                                                01251500
   1 3 PE
                      1.444
                                                                                11261700
                      217, <15.415
                      3v11, <1.48
                                                                                00261400
         TEST E
63
                                                                                01241900
                      HETTI . ST. CE. AAR GENERAL
         TEST SE
         TRANGER
                      · )_3
                                                                                01545000
                                                                                01242101
   1124
         43983V
                      27,41
                                                                                00545500
          459134
                     19.2
                                                                                00256560
          TREVETER
                                                                                01242400
                                                                                01245500
                                                                                01555500
                                                                                07242700
  A VIRGICANNIBALIZATION BUITINE
                                                                                01242900
                                                                                01752900
                                                                                01245000
   VIRCA TEST VE
                     441(3,7),<1,N)94
                                                                                01253101
         499134
                     1. 451
         TEST LE
                     475. FN44, 47454
                                                                                01753700
   4724
                                                                                01263300
         TARJATE
                     1 2
         49913V
                     14,41
                                                                                01243400
                      1,7,475,,25
                                                                                01243500
          5211
                                                                                00243400
         ADVANCE
                     21
<u>(19</u>
                      3V19, CT TEST FOR PREVENTING OFF SHIFT MAINT.
         TERT E
                                                                                00263700
        - 9AVEVALUE
                     12324.41
                                                                                01263400
                                                                                01243900
         -SAVEVAL JE
                     10256.41
          35 11
                                                                                00254001
                     1.76473..25
                      , 4344
                                                                                01254100
         TRANGER
                                                                                01242200
   VIRCH PPLIT
                      1.43950
                     ָּעְיַבְּרָעְיָּ
         TRANSFER
                                                                                01244300
                                                                                0000000
   MORES ASVANCE
                                                                                01254501
         TRAVEFER
                      . CANS
                                                                                01254500
   4784
         499134
                      23.70
                                                                                01244701
          TEST E
                      452,5429
                                                                                91244400
          TEST E
                      45477, 40
         45913V
                                                                                01754900
                      1. < 3
                                                                                01245000
         SATE LS
                      55. 4745
         SATE 2
                                                                                001265100
                                                                                0025200
         STAN
                      12.14.P14...N7R4
                                                                                00265500
          32_11
                      1.4377.60
         50 TT
                      1,4775,,67
                                                                                01255400
                                                                                01245510
                      1.7.475,,50
                                                                                00245500
         TRAVEFR
                     1 554
                                                                                01255700
   CAND ASSIGN
                     17,422
                                                                                01255400
         TRANGER
                     CVEC
         JV TV4
                      24, 1741,1,14,214
                                                                                00059500
   VIRT
                                                                                01255000
                     115
   4 19:
                                                                                01245100
   VORV
         JITY
                      11
         THE
   4704
                     29,8157
                                                                                00566566
                                                                                01245300
         LOSICS
   V JRY
                      5.2
                                                                                22245900
          TEST E
                      ASVDR...CO
                      29, CANA, 1, , , NJRE
                                                                                01245500
   V 193
          IN_THE
                                                                                01245400
                     75.41.4
          SELEVALAR
                                                                                01255700
          H.SSC. ES - BLJAVBVAR
```

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```
SATE LS
                  29
                                                                            01255900
      03138
                  53
                                                                            0.546900
      TEST E
                                                                            117c - 7000
                  4475. <0. V JR4
      49913V
                  1.475
                                                                            01247101
                  29.5443,1,14,21
      JALIAK
                                                                            01247200
      411664
                                                                            01247500
NORSE TARLATE
                  11
                                                                            00257400
      454VEV4LUE 5+, 425, 2, 41,4
                                                                            01257500
      F03155
                  23
                                                                            01247400
      45913V
                  17.413
                                                                            01247700
      TABULATE
                  5
                                                                            01247800
      ASSTIN
                  1. <5251
                                                                            01247900
CHAS
     459134
                  3. 450
                                                                            01245000
      45913V
                  2, 151
                                                                            00254100
      45913V
                  4, 455
                                                                            2254566
      TEST L
                  24. 45. CANE
                                                                            : 1245300
      499134
                  4.45
                                                                            01011-23
                                                                            01249500
TANE
      Shift
                  V 2 7
      SUEUE
                  44
                                                                            01255600
                  20, 24 VF
CANH
      SATE LA
                                                                            01265700
      ASSISV.
                  7. 424
                                                                            01245400
      499134
                  20,415
                                                                            01254900
      VEIPEA
                  5. (1
                                                                            01249001
TEST LE
                  247,23.CANJ
24,220,CANL
                                                                            00249100
                                                                            00249200
      DEPART
PYAT
                  V27
                                                                            01269501
      TEPAT
                  22
                                                                            01249400
      SALES
                  47,25
                                                                            01269500
      STANCE
                  22
                                                                            00262600
      LEAVE
                  47,25
                                                                            09249700
                  PT, JNLK, ALL
      JV.TVC
                                                                            COPFOSCO
      VEIPEA
                  17,22
                                                                            00243900
      4544EV4_UF 2+,22,817.435
                                                                            01270000
                 V55+, V35
      SAVEVALUE
                                                                            01271100
      SAVEVALUE
                  51 . , v 35
                                                                            01270200
      454.5.41 34.42.45.
                                                                            00270300
      TEST F
                  P24. (0, 5444
                                                                            01272400
      TEST E
                  21, <5331, CANN
                                                                            00270500
                  , 424 a
      TRANSFER
                                                                            01270400
VIRS ASSIGN
                  14,41
                                                                            01270700
      TABLLATE
                  12
                                                                            00275400
      TAK
                  30, 5 ** 7
                                                                            01271901
1795
      L031:8
                  35
                                                                            01271300
4)9)
                 10
      TABULATE
                                                                            01271100
      30111
                  1,4773,,60
                                                                            01271200
                  1.4648.,50
      32.11
                                                                            01271300
      SPLIT
                  1.4393..63
                                                                            00271400
      45913V
                  19,41
                                                                            01271500
                  13, 4 IFFER
      *******
VIRL
                                                                            01271601
      433134
                  5.4xa(1 214)
                                                                            01271700
      JOTY
                  12
                                                                            01271800
4725
                  29,22
      -1 VK
                                                                            01271900
      1031:4
4792
                  23
                                                                            01272000
                                                                            01272101
```

78 Card 2774 has been added to prevent off-shift maintenance.

```
PRANSFER
                        . 4343
      CANB SPLET
                                                                                    00272200
                        1.4744..60
            455134
                         $5. K4+53
                                                                                    00272300
                        1.4394..60
            SPLET
                                                                                    00272400
      VORJ
            PRIDATTY
                        50
                                                                                    00272500
            499134
                                                                                    00272600
                        1. 451
            433134
                                                                                    00272700
                        3. VSa
            1237 3
                        P3, 410(1, P14), 4)24
                                                                                    00272800
            4944EVALUE 4.1.414.43
                                                                                    00272900
      YJRK
           BOVANCE
                        .1
                                                                                   00273000
            495:34
                                                                                   00273100
                        19,4,5
            TABULATE
                                                                                   00273200
            TABULATE
                        12
                                                                                   00273300
            SATE LA
                                                                                   01273400
                        25
                        85F: ,56V
                                                                                   01273500
            LOSICS
                                                                                   00273600
                        52
            SAVEVALUE
                        62,922
                                                                                   00273700
           JAFEAK
                        JALAFEN, 85
                                                                                   00273400
           SATE LS
                       25
                                                                                   00273900
                                                                                   00274000
                       CVAS. 25
           LOSTER
                       95
                                                                                   00274100
     <u>Č</u>444
           TERMINATE
                                                                                   00274200
     SANC
           L031:8
                       24
                                                                                   00274500
           TEST E
                       PRCH, 250PX, 559
                                                                                   00274400
           SAVEVALUE
                       75, <1, 4
                                                                                   00274500
           TRANSFER
                                                                                   00274600
                       . VZQ 4
     CPCV
           JOIN
                                                                                   0074700
                       10
           BATE LA
                       27
                                                                                   00274800
           SATE LS
                                                                                   00274900
                       APEN, PS
                       #22, 452, 43RR
                                                                                  00275000
           103154
                                                                                  00275100
           TERMINATE
                                                                                  00275200
    ADMA SEADA
                                                                                  00275300
           PRITOTER
                                                                                  00275400
                       111
           TRANSFER
                       . 4144
                                                                                  00275500
    TAVA
          43413V
                                                                                  00275600
                       24, 44423
           JULIUE
                       27, CAVC, ALL, 12, 214
                                                                                  00275700
          PAVEVALJE
                      75,214,4
                                                                                  00275800
          ALICLIE
                                                                                  00275900
                      110, AUFFER
          SATE L'A
                      23
                                                                                  01276000
          TRANSFER
                      י פרע.
                                                                                  00276100
    MORP
          SATE LS
                                                                                  00276200
                      25.4775
          LO31:3
                                                                                  00276300
                      27
          JY_IVE
                      29, V773, ALL, 12, 214
                                                                                  00276400
          Ilebed
                                                                                  00276500
          SCAN
                      TDL N. 1.29x 125 101
                                                                                  00276600
          10:1:5
                                                                                  00276700
                      24
          FJ3156
                      27
                                                                                  00276900
          17:1:4
                                                                                 01276900
                      25
          TEST E
                      $10,41, NORF
                                                                                 00277000
          49913V
                      55,145
                                                                                 00277100
         1021C9
   MACH
                                                                                 00277200
                      25
(19)
                      SVIP, CI TEST FOR PREVENTING OFF SHIFT MAINT.
                                                                                 00277300
          SAVEVALUE
                                                                                 00277400
                     55+, 41
                                                                                 00277500
```

79 Cards 2776 and 2777 have been added to account for NORS times by aircraft and platoon.

```
- SAVEVALUE VESER. 41
                                       THESE SAVEVALUES SHOULD ACCOUNT
                                                                                01277400
      -SAVEVALUE 14254, 41
                                       FOR NORS BY A/C & CT.
                                                                                99277700
       TAFLAK
                   30, V774, ALL. 13, 214
                                                                                01277400
       SEADAL
                   13
                                                                                22277900
       SPLIT
YOUY
                   1.76475
                                                                                11275000
       TRAVEFER
                   . 4244
                                                                                11275100
       POSICA
LPCH
                   27
                                                                                005275200
       SATE L'9
                   25
                                                                                01279300
                   . 477
       TRANSFER
                                                                                01275400
CANE
       ASSIZY
                   7. 427
                                                                                01275500
       45513V
                   20.459
                                                                                01279600
       49913V
                   9. <?
                                                                                00777700
       FRESPASST
                   . CAYS
                                                                                01275400
-: 49913V
                   23. 447
                                                                               00275901
       45913V
                   21.55444
                                                                               00279000
       LTVK
                   27,223
                                                                               01277103
       45513V
                   19, 459
                                                                               00279200
       45513V
                   4.050
                                                                               00279300
       458134
                   26,41
                                                                               00277400
       TEST E
                   93, <1, CANK
                                                                               01279500
       TFACT
                   451
                                                                               01279500
       SZDART
                   44
                                                                               0079700
       ALISCIBE
                  1.3JFFER
                                                                               00279400
       ALIECIE
                   90
                                                                               01277900
      455134
                  4,313
                                                                               00000500
       499134
                  25,17
                                                                               COICESEC
       TRANSFER
                  PANE
                                                                               00500500
                                                                               0020000
                                                                               01240400
                                                                               00280500
                                                                               00968560
SERVICE PLATON, DIRECT SUPPORT, SENERAL SUPPORT COMP REPAIR
                                                                               00702500
                                                                               0020000
      499134
1444
                  6,46
                                                                               00909500
       TRAVSFER
                  .THA3
                                                                               00241000
THAA
      499134
                  4. 465
                                                                               00241100
       TABULATE
                  13
                                                                               00512500
       TARULATE
                                                                               01241300
                  14
      TEST LE
TEST LE
TEST NE
                  V139, 941, 4846
                                                                               01241400
                  V180. 241, 4847
                                                                               01241500
                  V65. (0, 1444
                                                                               00211600
      TEST L
                  P4, 46, 1443
                                                                               01291700
```

```
45973Y
                                                                                01241403
                  4. 45
      31505
                                                                                00919900
                  45
                                                                                00058510
      SATE SHE
7 4 A C
                  PHER, THAD
       SEPART
                  45
                                                                                01292100
                                                                                2154550
       EALES
                  EVES
       455134
                  32. 447
                                                                                00858560
      31:15
                                                                                21232400
                  V54
1445
      TEST SE
                  9.32. P31. 1445
                                                                                01292500
      DEPART
                                                                                00956560
                  V55
                                                                                01242700
      FATER
                  .32, 231
      SAVEVALUE
                  V57+. V70
                                                                                COMSPSEN
      SAVEVALJE
                                                                                00958510
                  75+. 470
                                                                                01243001
      BOVANCE
                  0.0
                  E 14 3
                                                                                01293100
      LEAVE
                                                                                01243200
      LEAVE
                  .32,231
                                                                                2223300
       JAFRAC
                  31,1445,ALL
                  55, THAP, ALL, 32, 232
                                                                                00253400
       JAFLAK
                                                                                01293500
      493174
                  5.43
                 77, 247, 4
                                                                                07243600
      SAVEVALUE
                                                                                00293700
                  X477, V71, AH445
      TEST L
      43913V
                  5+, <1
                                                                                01243400
                  X477. 472. AR445
                                                                                01243900
      TEST 3
                                                                                01244000
      435134
                  4-, ()
      TEST 3
ASSION
                  4477. 475. AP-47
                                                                                00144500
                                                                                01544500
                  54,41
                                                                                01244300
      SAVEVALUE 197+, 41
      494 VEVAL IE 50, Va4, 06, 41, 4
                                                                                01244405
1445
                                                                                00294500
       ASAVEVALUE 5+, VI5, +6, V70
       SAVEVALUE V173+. V70
                                                                                00294400
      SAVEVALJE
                 $50+, v77
                                                                                01244700
                  V192...70
                                                                                01244800
      SAVEVALUE
      34 VEVALUE 1250 + . V70
                                                                                0000000
                  26,44,5467
                                                                                6 1245000
       TEST E
SEPA TABULATE
                  15
                                                                                0017-500
      STAVIPEST
                                                                                002-5-00
                                                                                00245300
ARMAS SAVEVALUE
                 179+,41
       TRANSFER
                                                                                00245400
                  CAPIL
                                                                                00235500
ARMAS SAVEVALUE
                 150+,41
      TRANSFER
                  . 42425
                                                                                00255600
                  141+, <1
                                                                                00255700
ARMOT SAVERALUE
                                                                                00245400
      TRAVSFER
                  . 4 9 4 7 5
      455134
                                                                                01245900
4546
                  12.1
                                                                                000000
      ** 1166164
      49913V
                  175.65
                                                                                001295100
                                                                                00245200
      ASSIZV
                  30,41
                                                                                00245300
                  P25, 45, 4848
      TEST E
                                                                                00246400
      439134
                  26.42
                                                                                11246501
444
      49913N
                  27.7
       495134
                  17,14
                                                                                00245600
      4991;V
                                                                                01255701
                  5.7
       SAVEVALUE
                  1174,41
                                                                                COPERSON
       494 VEVALUE 5+, V25, +6, 41, 4
                                                                                01245901
                                                                                01217000
      TRAVEFFE
                  , JYSI
ARMB APPTON
                  26,3
                                                                                00297100
```

Cards 2888 and 2889 have been modified to allow for up to 24 TBO components.

```
TRANSFER
                    , 4949
                                                                             00297200
                     $1, PTF3
                                                                             00247300
   CAPT
          LEVE
   THAT LEVE
                     55, 4173
                                                                             00257400
   4347
          499134
                     $2. 4141
                                                                             00297500
          SUSTE
                     5014
                                                                             00287600
    ARMIR TEST GE
                     RAS2, P31, AR412
                                                                             00297700
                                                                             10257800
          TEPART
                     4142
          ENTER
                     432,231
                                                                              00257900
          SAVEVALUE
                     V143+, V70
                                                                             00298000
                                                                             01288100
          SAVEVALUE
                     107+. V70
          BOVANCE
                     -4
                                                                             00288200
                     .32,231
                                                                             00298300
          LEAVE
                                                                             00289400
          JULGUE
                     57.42413.4LL,32.932
          49913V 6,9
94VEVALUE 179+,41
                                                                             00258500
                                                                              00298600
          TRANSFER
                     PAPT.
                                                                             00256700
57. 7773
                                                                             00255800
                     12,74
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                     #22,446(27,#121,4R428
                                                                             01259100
          _0.3e
                     12.49427
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          TRANSPER
                     . 1443
                     1,49429,,40
    ARMES SPLTT
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                                                                              00249400
          TRANSFER
                     CAPT.
   95,445(28,+17),9460
                                                                             00299500
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          TERMINATE
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   SVITUE JUSTICE PRECENT
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       SUTTLEMELP METTAMINATE TOTAL
                                                                              30406500
    VIISCIPS ASER
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                     100
                     1,49:5.,25
                                                                              CORCESCO
          SPLIT
          SPLIT
                     3,42:3,2,25
                                                                             00290900
          49913V
                     3,411(+2,2)
                                                                             01291000
    4369
          TERT SE
                     P1, <1, 3467
                                                                             00291100
                                                                             00291200
          ASSIGN
                     5.4x4(+2.3)
                                                                              01291300
          BOVANCE
                     V70
                                                                             00201400
    4364
          ASSISV
                     1, <31
                                                                             01291500
          SPLIT
                     22,4224,1,25
          L05118
                                                                             00291600
    4366
                     53
          SPLIT
                     1,42:0,,25
                                                                             00291700
                     25
                                                                             00291900
          BOVANCE
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                     54,5422,1,13
          JULTUK
          JULTUK
                     56, 40CF. 1.13, . 40CG
                                                                             00050500
                     • 3
                                                                             00292100
          SCHAVCE
          TRANSPER
                     , 4300
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   WOCK TEST L
                     Re1. (900.9462
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TEST E
                    341, 47, 4P$J4
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  4366
        ASSIBN
                    11,701
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        ENTER
                    41,211
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        BATE LA
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         EAVE
                    .1,911
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        T THINATE
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  4364
       45913V
                    15. 475
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        455134
                    9,215
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  42013 SP_11
                    1,4001..25
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        499134
                    21,54964
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        499134
                    23. <1
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                    81,893
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 4967
        LINK
                    55, FTF7
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 4361
        TRANSFER
                    ,4003
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                    PRANTA MACK
 4354
        TEST E
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        TRANSFER
                   , APCLI
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        LOSTER
ADVANCE
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        JYLIVE
                    56, 49CF, 1, 13, , 49C4
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        TRAVSFER
                   ,4200
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 45C14 433134
                   5.301
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        PRANGER
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    SHITL CHANGE SURROUTINE
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                   3,4x3(1,1)
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        45513V
                   5,441(2,1)
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        BOVANCE
                   4X3(1.4)
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       LDSTOT
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                   0.5
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                   30, 49:4A
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        LOSICI
                   30
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        459134
                   4,11
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 ANTINE FASEN
                   V77, I'LK, ALL
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       LOS
                   4, 40:45
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        TRANSFER
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 42CA4 LOSICI
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 ADCAS JAFRAK
                   V75, INLY, ALL
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       LOSP
                   342:46
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        BOVANCE
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       SCHANCE
                   V145
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                   , HPC I
       TRANSPER
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SVITUCE VETTALISHES ATAC .
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SE PRINCE SEC
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       459134
                   3.4X1(5.1)
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       *******
                  1,3JTPEH
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       SOVANCE
                   49
                                                                              01297400
       4544EV4 1.6.11.484
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       499134
                   5.11
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 48435 45913V
                   1. 4175
                                                                              00779500
       45913V
                   2. 4179
                                                                              00297800
```

81 Cards 2990 and 2991 have been revised to define new save values as a result of increasing the platoon size to 24 aircraft.

- 82 Card 2994 has been modified to allow for 24 TBO components.
- 83 Cards 2998 and 3002 have been added to account for NORS times.

84 Cards 3008, 3012, and 3023 have been modified, due to the save value changes generated by increasing the model size to 24 aircraft.

```
455134
                   3, V190
                                                                              00070500
       455134
                   4, 4191
                                                                              000295000
       SAVTVALUE
                   V177+, V192
                                                                              00169500
       SAVE ALUE
                   V199., V182
                                                                              00299200
       LDD
                   5.48435
                                                                              00295500
       SAVEVALUE
                   557+. 4153
                                                                              00295400
       SAVEVALUE
                   1130+, V183
                                                                              21295500
       ASSISV
                   6. <1
                                                                              0022500
       49513V
                   1,525
                                                                              00295700
       ASSIGN
                   2.551
                                                                              CORPESCO
       45513V
                   3.251
                                                                              00086500
      -45913V
                   4,775
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      -499734
                   5-1451
                                                                              00100500
47444 49913V
                   1.4515
                                                                              00566500
       SULAVEVALUE
                   V193, V213
                                                                              00299300
       TEST E
                   P6, 1191, ARM43
                                                                              00299400
       SAVEVALUE
                   915v.c24
                                                                              00299500
       SAVEVALUE
                   193+, V215
                                                                              00466240
       459134
                   596.5
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                              ESTABLISH SAVEVALUE NOS. FOR NORS /AVAIL.
      VEIPEA
                   3,1424
                                                                              19299900
       459134
                   1,574
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                   42. V216
SUJAVEVALUE
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       439134
                   17.-5
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      45513V
                   3-, <1
                               SET JP SAVE NOS FOR NORS TO CALC. AVAIL
                                                                              00300200
       TEST VE
                   P1.651,48445
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       LOTE
                   1 . 42 449
                                                                              00300400
       TERMINATE
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ARMAS SAVEVALUE
                   700, 4217
                                                                              00300600
       45513V
                   1.224
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      49913V
                   2.1425
                                                                              00300501
      455134
                   3.201
                                                                              01310901
       499TSV
                   4.701
                                                                              09391000
ARMSO SAVEVALUE
                   48.V219
                                                                              09301100
                   04,794,AR451
      TEST VE
                                                                              00301200
       439:34
                   1 . 1
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      MEILEN
                   2+.1
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      433134
                   30,1
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      439134
                   4+,1
       TRANSPER
                   . 42450
                                                                              01301700
ARMS! SAVEVALUE
                   725. 4220
                                                                              09301400
                                                                              003-1900
      499134
                   1.226
      459134
                   5.501
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       499134
                   3.725
                                                                              11312100
                                                                              00302200
                   45, V218
ARMS? SAVEVALUE
      TEST NE
                   P3,740,AR453
                                                                              00405300
       455134
                   1 . 1
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      499134
                                                                              01302500
                   1.+5
      ASSISA
                   3 . . 1
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       TRANSFER
                   . 49452
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ARMSS SAVEVALUE
                  750. v221
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49913V
                   2.411
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):RA
       459134
                   3.4x1(6,P2)
                                                                               01303000
       TEST GE
                   P3.41.00RC
                                                                               01303100
       499134
                   17,25
                                                                               00303200
       494VEVALUE 2+, 03, 017, 03
                                                                               01313300
       SAVEVALUE 20+, 23
                                                                               01303400
       SAVEVALUE
                  V30+. =3
                                                                               01313500
       LOTP
TEST E
29:0
                   5.0243
                                                                               01303600
                   281(5,8), <0, DIRE
                                                                               01303700
1:40
       45913V
                   2.25
                                                                               01313400
                   REMOVE FOR SHAP RUNS
                                                                               01303400
DIRE
       BIFFER
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       499134
                   2.25
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):#S
       455134
                   3. <10
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>:45
       455134
                   5.44>(+3,+2)
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       494 VEVALUE 2+,15, 42, 45
                                                                               01314400
       LOTE
                   3, 3295
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       LOTE
                   5,0595
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3550
                   .9564
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43483 49913V
                   1+, <1
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       459134
                   2+, <1
                                                                              01414900
       439134
                   3+ . <1
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       459134
                   30, 41
                                                                              01305100
       455134
                   54, 41
                                                                              00520866
       455134
                   50,41
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       TRANSPER
                   . 43424
                                                                              01315400
       SAVEVALUE
                  195, 4229
                                                                              01315500
       SAVEVALUE
                  185. V250
                                                                              00305500
       SPLIT
                   1,0002
                                                                              02305610
       3 1 ....
                                                                              01305511
       TERMINATE
                                                                              01315700
....
       499134
                   2.43
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       45513V
                   3,441(5,7)
                                                                              01315200
       4344644FTE 5+.4.17.03
                                                                              3335000
       SAVEVALUE VS7+, 93
                                                                              01316100
       SAVEVALUE
                  32+, >3
                                                                              00306200
       SAVEVALUE
                   924,41
                                                                              01305300
       SAVEVALUE
                  157+.41
                                                                              02326402
       SAVEVALUE
                  V195++41
                                                                              00306500
       SAVEVALUE
                  600+.41
                                                                              01305600
       SAVEVALUE
                  V1984,41
                                                                              01316700
       SAVEVALUE
                  1230+.41
                                                                              01306400
       SAVEVALUE
                  V195+.41
                                                                              01306900
       SAVEVALUE
                  575+.41
                                                                              01317000
       SAVEVALUE
                  V194+. 41
                                                                              03307100
       SAVEVALUE
                  1275+,41
                                                                              01317200
       TERMINATE
                                                                              01507300
7543
      TABULATE
                                                                              00307400
       SAVEVALUE
                  35+, 41
                                                                              01307500
       SAVEVALUE
                  53+,41
                                                                              01317400
       TERMINATE
                                                                              03337703
2463
      TERMINATE
                                                                              01307400
      ALIECIBE
3474
                                                                              01307900
```

85 The START card has been modified to suppress the output of the GPSS chains and give 5 intermediate outputs.

This card should be tailored to the specific needs of the analyst by referring to the IBM GPSS manual.

The output editor has been modified to contain the baseline CH-47 mission and maintenance concept narrative.

Also, the output editor has been modified to accommodate a platoon size of 24 aircraft.

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SSVAVCE
                                              (6)
                                                                                                                                                                     01315000
       34741 45512N
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       BONAVCA CATAC
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                     TEST E
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       SOUPLE STATE
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                     ADVANCE
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                     TEST E
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       SOVANCE SATAC
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                     TRANSPER
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                                              .DATAL
       SATAR SAVEVALUE
                                              199-1455
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                                             197-. 4227
                     SAVEVALUE
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                                              . 24745
                     TRANSFER
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       SULAVEVALUE
                                             145-. 4270
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                     SAVEVALUE
                                            157-, v228
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                     TRANSPER
                                             . DATAS
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                     LEST
69
                    START
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                     TECESE
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                     EJECT
                     STACE
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                                              ARMY R & M STHULATION HODEL
                     TEXT
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                     TERT
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                     SPACE
                                                                                                                                                                     00310300
                                              SCENARTO SIMULATED
                     TEXT
                                                                                                                                                                     01310400
                     SPACE
                                                                                                                                                                     01310500
                     TEXT
                                              THE PLATOON OF STREET ARMY MELTCOPTERS
                                                                                                                                                                     01310501
                     SPACE
                                                                                                                                                                     00310700
                                             FLYING PROGRA4 CONSISTED OF SEVEN FLYING DAYS PERMEEKADOSIDADD
                    7 * * T
       ATTH BACH STAULATION INTERVAL COVERING & FOUR WEEK PERTOD.
                                                                                                                                                                     01310900
                    SPACE
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                     TEXT
                                             MISSION LENGTH IS 1.5 HOURS WITH A DEMAND OF SU FLYMONSILLOO
     INS HOURS BEN FLACATEL EDS THE EUTS HEEK SESTOD.
                                                                                                                                                                     00511200
                    92455
                                                                                                                                                                     01311300
                     TEXT
                                              LAINER SCHEDULE DURING BACH FLYING DAY
                                                                                                                                                                     01311400
                                                                                                                             3 AIRCRAFT
                                                                       3 AIRCRAFT
                                                                                                         2930
                     TEXT
                                              1703
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       5
                     TEXT
                                             1933
                                                                       3 ATROPART
                                                                                                         1130
                                                                                                                                3 AIRCRAFT
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                                                                       3 ATRIBART
                                                                                                                                1 AIRCRAFT
                     TEXT
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       •
                    TERT
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                                                                      3 ATREMANT
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                     TEXT
                                             1930
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       5
                     92455
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                     TEXT
                                              THER PLIGHT CONSTDERATIONS
       2
                                                                                                                                                                     001512100
                                              STANDSY AIRCRAFT READY AT ALL TIMES
                     TEST
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       5
     DURTHS THE ACHEDULED PLATING INTERVALS.
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                    SPACE
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                     TEXT
                                              MAINTENANCE CONSERT STAULATED
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                     30455
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                     TEXT
                                             PERIADIC MAINTENANCE INSPECTIONS
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       SEUCH ENERY 100 FLYING HOURS
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                     SPACE
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TEYT
                                                                          *01313200
                                                                           01313300
       SPACE
                                                                           01313401
                   PREVENTIVE MAINTENANCE DATLY (PMD) INSPECTIONS DECUR #0313500
       TEXT
DATLY TO THE ATREMANT HAS PLONN IN EVERY TO ADJAS IP NOT PLYING.
                                                                           01313600
       SPACE
                                                                           00313700
       TEXT
                   VATUTEVANCE PERSONNEL ARE AVAILABLE SETHEEN 0600 AND +00513900
2230 SURING THE SEVEN SAV FLYING PERIOD PER HEEK
                                                                           00313900
       32455
                                                                           03314000
       TEXT
                   THE THEY EXCEPTION TO THE ABOVE OCCURA WHEN THERE AREAGASIGIOO
 NOT SIPPROTENT ATROPART TO MEET THE FIRST MISSION DEMAND OF MENT DAY
                                                                          00591200
       SPACE
                                                                           01314300
       TFYT
                   THE ATROPART CONSTSTS OF 293 FLEMENTS, THERE ARE 16
                                                                         -01314400
THE CHANGE COMPONENTS.
                                                                           01314500
       SPACE
                                                                           01314601
                   AN INTERMEDIATE I SPECTION IS PERFORMED EVERY 10
       TEXT
                                                                          -01314700
FETGHT 47349
                                                                           01314800
       SPACE
                                                                           01314900
                   DREAMIZATIONA, MAINTENANCE INCLUDES AN INTEGRATED DIRECTS SOON
       TEYT
PET SUPPORT MAINTENANCE CAPABILITY
                                                                           01315100
       SPACE
                                                                           00315200
       TEYT
                   CHACTARA DE SOMMETHEM THANGENCE THANGE TO PERFORMED
                                                                          -01315400
AT THE DEPOT LEVEL.
                                                                           01315400
                                                                           01315500
       SPACE
                                                                           01315400
                   CHARLO & STATE STAN OF HOLITANHACHE
                                                                           01315700
       TEXT
 3
       SPACE
                                                                           01315901
       TEXT
                                                                           00315900
                   PETTALJAVE
 Ş
                                                                           01315000
       SPACE
       TEXT
                   PASTS CHEATE HISSIDN AND MAINTENANCE PHILOSOPHY
                                                                           01315100
 13
                                                                           01315200
       EJECT
       TEXT
                                                                           01315300
 17
                                ADVIALY ATSALDA
       SPACE
                                                                           01315400
       TEXT
                                  INFORMATION
                                                                           01316501
 13
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       SPACE
                                                                           01315700
                                                           MISSIDAS
                                                                          +03315400
                   TRERAFT
       TEXT
                                        MISSITUS
 1)
                                                                           07315700
    VETERIN
                                                                          *01317000
       TEXT
                   TATL NUMBER
                                        CALLED
                                                           FURN
 13
                                                                           01317100
    PLAINS 47145
       99455
                                                                           01317200
                   3
13
                                                                    #x226+01317300
       TEXT
                                        #XXX/5.10cx#
.SIXXXe
                       #x251.2/1.KYX.X#
                                                                           01317400
                                                                           00317500
       SPACE
                                                                           09317600
                   5
                                                                    #x227+05317700
 13
       TEXT
                                        mx5J5'S\KXXW
'SIAKE
                       #X252,2/1_XXX.Y#
                                                                           01317400
       SCAPE
                                                                           01317900
                   3
                                                                    ##728+01318000
       TENT
                                        ax502'5\AXXa
12
, >/YZZG
                       #K523'5\1"KKK"X#
                                                                          01315100
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10

32466	3		
19 TEXT		4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	00319200
* 5\AXA#		#X554.2/1_#XX.X#	#x22000318300
SPACE	3		01318400
10 TEXT		5 47505,2/4448	01319500
* 5\AXXA		ex255,2/1.Wxx.xe	##230+01319600
SPACE	3	•	07319700
13 TEXT		# ax507'5\4XX#	01319800
'S\AKER		ex520'5\1"Kxx"Xe	#X231+01319400
39468	3	•	07319000
10 TEXT		7 # # # # # # # # # # # # # # # # # # #	00319100
*5\KXX0		#¥257,2/1.KEY.X#	#x232+0131 #200
SPACE	3	- •	07319300
13 TEXT		8 wxxy,5,205x0	01319400
'S\XXA		01250.2/1_XX1,10	#x233+01317500
SPACE	3	•	00319600
13 TEXT		axxx/c.eokxa	00319700 02234-03319900
'S\XXA		#X524'5/1"KXX"X#	
SPACE	3		03314400
13 TEXT		10 04215,2/4440	00105Eco
* 5\XXA		8459U'S\1"X44"X8	
SPACE	3	· ·	01320200
10 TEXT		44511.57448	00805C0#453##
'SIAKA		##261,2/1_##X,##	
SPACE	3	•	01320500
13 TEXT		15 ex515'5\RXA	007052000 007052000785x#
* S\XXAR		##565'5\1"KXX"#	
SPACE	3	•	01320900
13 TEXT		13 8X513.>/XXX8	00922900 00017510+855x
* 5\AXA		#X5+3.5/1 "XXX" X4	
SPACE	3		00321100
10 TEXT		10 84514'5/4448	0051550 00515500+055x*
'S\AKKR		21594'5.1"KXX"Xa	
SPACE	3		01321400
10 TEXT		15 #x215,2/xxx#	00321500 00321500
'S\AXAB		0×265,2/1_Kx4, X8	
3PACE'	3	•	00321700
19 TEXT		15 01216,2/144	00721900 0071500+145x4
'S\XXKA		44599'5\1"KAX"X8	01355100
SPACE	3		
10 TEXT		17 01217,2/1110	001592100 005552000545xm
'S\XXKO		##267,2/1.W##. ##	
SPACE	3		00322300 00322400
10 TEXT		15 #X218,2/XXX#	#1243+01322500
'5\XXX		4x598'5\1"Kxx"X4	00452600
SPACE	3		01322800
10 TEXT		19 01510,5/448	004225600beza
*5\AXA8		#4524'5\1'K4X'X#	00955600
SPACE'	3		03322400
13 TEXT		30 84550'5\KKK@	#X245+01323100
15/4X48		#¥270,2/1_XXX,Y#	00323200
SPACE	3		01323300
13 TEXT		\$1 0x551'5\xxxa	#X246+01323400

```
'SIXXXA
                                               ##271,2/1_KEX.X#
                                                                                                                                                           00323500
              SPACE
                                               >2 '
                                                                                                                                                           00323600
              TEXT
                                                                        #X555'5\#K##
                                                                                                                                               #x247+01373700
   13
  . S/XXX0
                                               #x272,2/1_xxx,x#
                                                                                                                                                           00823400
               SPACE
                                                                                                                                                           09323400
               TEXT
                                                                        ex552'5\XXXe
   13
                                                                                                                                               ##248*00324000
 *5/KKER
                                               ##273,2/1_###_##
                                                                                                                                                           01324100
               SPACE
                                                                                                                                                           00324200
               TERT
                                                                        8x554,5/xxxe
                                                                                                                                               ##249+01324300
                                               #X274,2/1.XXX.X#
 . >/XXXE
                                                                                                                                                        00574400
               TEXT
  1 2
                                                                                                                                                   ---*00324500
                                                                                                                                                           01324500
              SPACE 2
                                                                                                                                                           00324700
                                       PLATCE VINTER
  12
                                                                                    4X552'5\XXX
                                                                                                                                              #x250+01324500
                                           ##275,2/1.###.X#
 . SIXXAR
                                                                                                                                                        00324900
               EJEST
                                                                                                                                                           00325000
                                                                  ADVITUE SCHEDULED
               TEXT
   1 7
                                                                                                                                                           00325100
               SPACE
                                                                                                                                                           00325200
               TEVT
                                                             NOITAMPERMI MCITCIRENI
  19
                                                                                                                                                           00325500
                                                             ------
                                                                                                                                                           00325400
                                      ATRICART PREFLIGHT
PAT PAT
TAIL: NUMBER OF
NUMBER OF MAINT
NUMBER INSPECTION
               SPACE
                                                                                                                                                           00325500
                                                                                                  PREPLIGHT
PHP
HAIN'I.
                                                                                                                                 DAILY
   .
              TEXT
                                                                                                                                                        .00325600
                                                                                                                                      DHP
           DATLY
                                                                                                                                                         09325700
                                                                                                                                    NUMBER OF #00325800
              TEXT
           SATUT.
                                                                                                  HUMAEQ OF
                                                                                                                                      MAINT 00325900
             TEXT
                                                                                                  ODDOSENDANCITOSANI . SEH MAN
           444 479.
                                          THEFECTION HAN HES. INSPECTION HAN HE COSSESSO
              $940E 3

TEXT 1 0x376,2/xxx0 0x351,2/2[xxx,xx0

TEXT 0x374,2/xxx0 0x401,2/2[xxx
                                                                                                                                                          00359500
                                                                                                                      002452660************
  3
                                                                                                                                                         01325400
..
  79
                                                                           *x401'5\5FXXX'XX*
                                                                                                                                                    #X+00326500
425,2/xxx4
                                        exe51,2/2Lx4x.4xe
                                                                                                                                                          00326600
              SPACE 3
              TEXT 8x277,2/xxxa 8x202,3/2/xxx

1Ext 8x277,2/xxxa 8x202,3/2/xxxa

1Ext 8x207,2/xxxa
                                                                                                                       #x302.2/2[xxx.x+00326900
  •
K W
                                                                                                                                                          01326900
 79
                                                                                    #X305'5\SFAXA'AXW
                                                                                                                                                    #X+00327000
#27,2/XXX#
                                       ex155,2/2Lx4x.xxe
                                                                                                                                                           00327100
                                   3
              SPACE
                      L 6x214<sup>5</sup>5\xxxa 6x22<sup>5</sup>5\xxxa 6x22<sup>5</sup>5\fxx<sup>3</sup>0
4x22<sup>5</sup>5\xxxa 6x214<sup>5</sup>5\xxxa
L 2 6x514<sup>5</sup>5\xxxa
CE 2
                                                                                                                                                          00327200
                                                                                                                     #X303,2/2LXXX,X+00327300
  3
               TEXT
X e
                                                                                                                                                         00327400
                                                                                 ***63'5\SF*******
              TEXT
 79
                                                                                                                                                    #X+03327500
429.2/2120
                                        **455,2/2,*4*.***
                                                                                                                                                          00327600
             SPACE 3
                      L 64214'5\XXXX8 6X226'5\5|XXX
64256'5\XXXX8 6X326'5\5|XXX'XX8
64256'5\XXXX
64216'5\XXXX
64216'5\XXXX
64216'5\XXXX
64216'5\XXXXX
64216'5\XXXXX
64216'5\XXXXX
64216'5\XXXXX
64216'5\XXXXX
64316'5\XXXXX
4316'5\XXXX
64316'5\XXXX
64316'5\XXXX
64316'5\XXXX
64316'5\XXXX
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64316'5\XXX
64316'5\XXX
64316'5\XX
64316'5\XX
64316'5\XX
64316'5\X
                                                                                                                                                         00327700
                                                                                                                    #X304,2/2LXXX,X+00327900
  3
Y .
                                                                                                                                                         00327900
                                                                           exdod'5\SFAXX'XXe
           TEXT
  79
                                                                                                                                                    *x+01325000
                                        # x # 2 # . 5 / 5 L x x x . x x #
#39. C/SXXA
                                                                                                                                                        001555100
00325200
                                                                                                                     #x305,2/2Lxxx.x+00328300
                                                                                    *x#22'5\5Fxx**x*
                                                                                                                                                          00328400
                                                                                                                                                    #X+09329500
                                                                                                                                                        00325600
             SPACE 3
                                                                                                                                                          00328700
```

```
3
      TEXT
                                                   #X306,2/2/XXX,X+00328800
                              **581'5\****
          0x331.5/xxx0
                               #X356, ?/?LKXX. XX#
Xe
                                                                   00952500
                0x351,2/xxx0
      TFYT
 7 9
                                    SX409'5\SFXXX'AXB
                                                                #x+00329000
431.2/YXX#
                 0x456,2/2Lxxx.xx0
                                                                   00122100
      SPACE
                                                                   00329200
      TEXT
                              ##585'5\XXX#
                                                   #X307.2/2LXXX.X+00329300
            01335'S\XXX0
Y #
                                                                   03329400
79
      TEXT
                                     #X+00329500
432,2/xxx#
                 0x457.2/2Lxxx.xx0
                                                                   00329600
      SPACE
                                                                   00329700
      TEXT
 .
                            ex592'5\xxxe
                                                    00862500****************
         0X333,2/YYY0
                              ex358.5\5FKXX'XXe
X .
                                                                   00329900
79
               #X353,2/XXX#
                                    0x303,5\5Fxxx.4x0
                                                                *x*00330000
433,2/2120
                  **458.2/2LX**.***
                                                                   00330100
      SPACE
                                                                   00330200
                 .
 1
      TEXT
                             ####\$\####
                                                    0X309,2/2LXXX.X+00330300
          01334,2/ETY0
X e
                              ax326'5\SFKKK'KXa
                                                                   00330400
      TEXT
                BXXX/S.DPEXB
79
                                     exa07,2/2Lxxx.xxe
                                                                #x+01330500
454,2/444
                  0x350,2/2FX4X*4x0
                                                                   00330600
      SPACE
                                                                   00330700
                             ex582'5\XXXA
                                                   #x310.5\5[xxx.x+00340800
              6x342'5\xxxe
6x360'5\sfxxx'Xxe
          #X335,2/4X4#
Y a
                                                                   00330900
79
      TEXT
                                     4x410'5\5Fxxx'AX4
                                                                #X*00331000
435,2/XXX
                 axaeu'S\SFX4X'XX8
                                                                   00331100
      32455
                                                                   00531200
      TEXT
                             ##596'5\XXXA
 3
                 11
                                                   #X311.5/2[#XX.X+00331300
        4x330,5\xxx4
X .
                              MX341,5/5FKXX.XXG
                                                                  00331400
75
                #X394.2/XXX#
                                    exall.5/SFxxx.xxe
                                                                #X*00331500
435.2/4444
                 0x491'5\5Fxxx'xxe
                                                                   00331600
      SPACE
                                                                   00331700
 5
      TEXT
                12
                             OXXX/S,TREED
                                                   #X312.5/2[XXX.X+0033.800
X .
          #### 1337,2/####
                               ax205'5\5FKXX'XXa
                                                                   00331900
79
      TEXT
                8x357.2/xxxe
                                     44415'5\SFXXX'XX4
                                                                000222000
437.2/XXX
                 #4895'5\5FX4X'XX#
                                                                  00332100
      30466
                5
                                                                   00332200
      TEXT
3
                1 3
                             ##588'5\####
                                                    #X313,2/2L4XX,X+00332300
                              ##365,2/2L###,###
          ##338,2/YYY#
X .
                                                                   00332400
      TEXT
75
               #¥359,2/¥¥X#
                                     exe13.2/2Lxxx.xx#
                                                                #X+00372500
439,2/xxxe
                 ex493'5\5Fxxx"xxe
                                                                   00332600
      SPACE
                                                                   00332700
3
      TEYT
                 14
                             #4584'5\AAX#
                                                   #¥314,2/2LKXX.X+00372800
       ##339,2/K###
Xe
                             ax304'5\5FKAA'XXA
                                                                   00332900
     TEXT
79
             ex393,2/xxxe
                                   exala.5\SFXXX'AXe
                                                                *X+00333000
437,2/xxx
                 #x394'5\SFXXX'XX#
                                                                  00333100
      SPACE
                                                                   00622200
      TEXT
               15
1
                             ex540'S\XXXe
                                                    #X315.2/2[XXX.X+00333300
             ax340'5\xxxa ax292'5\sfxxx'xxa
X .
         #XX40,2/XXX#
                                                                  00333400
79
     TEXT
                                     0X215, 2/2L 4XX, 4X0
                                                                *x*00333500
BXXXVS.CAB
                 84892'5\5F44X'XX8
                                                                  00333600
```

```
SPACE
                                                                        00333700
 3
       TEXT
                  16
                                ##541'5\KXX#
                                                       #X316.2/2L#XX.X+00333800
           81341.5/114E
X 0
                                 ax200'5\5FXXX"AXa
                                                                        00333400
       TEXT
79
                  #X341,2/XXX#
                                        4x416.2/2LXXX.4X#
                                                                     4x+01334000
441.2/XXXE
                   exapp.5/5Fxxx*xxe
                                                                        00334100
       SPACE.
                                                                        01334200
                  17
 3
       TEXT
                                AXSAS'S\XXXA
                                                        #X317,2/2LXXX.X+01374300
X
           0x345,2/4xx0
                                 0X367,?/?LXXX.XX0
                                                                        00334400
79
       TEXT
                  ex39>,2/xxxe
                                        ##417.2/2LXXX.XX#
                                                                     ## = 00334500
442.2/XXXe
                   ##467.2/2LX4X.XX#
                                                                        00334600
      SPACE
                                                                        00334700
       TEXT
                  1.5
                                #X343'5\AXX#
                                                        #X318,2/2LXXX,X+00334800
                               ex200'5\SFKXX'XXe
X.
           ex343.5/xxxe
                                                                        00334900
73
      TEXT
                  #X342.2/XXX#
                                        4x419.5/SLxxx.xxe
                                                                     ***00335000
443,2/2224
                  84869.2/2FX4X*4X8
                                                                        00335100
      SPACE.
                                                                        60335200
       TEYT
                  1 9
                                #x544'5\XXX&
1
                                                        #X319,2/2L'MXX.X+00335300
Xe
           01344,2/XXX0
                                4x346'5\5FKX4'XX8
                                                                        00335400
                  #X394.2/XXX#
                                       exdie's\SFXXX'AXe
73
                                                                     #X+00335500
888.2/XXXE
                   mxd26.5\SFX4X'XXm
                                                                        00335600
      SPACE
                                                                        00335700
3
      TEXT
                 50
                                #X245,2/XXX#
                                                        #X320,2/21KXX,X+00335800
                                   #X370,2/2L#XX.XX#
X B
           #XXX\$,20EX#
                                                                        00335900
      TEXT
                  ##395,7/XXX#
79
                                        axd50.5\5FXXX"AXa
                                                                     #X+00336000
445.2/XXX#
                  ##470,2/2Lxxx.xx#
                                                                        00336100
      SPACE
                                                                        00336200
                  21
                                ex540'5\XXXe
                                                        #X321,2/2[KXX,X+00336300
           OXXXVS.00EXO
                                 #X371,2/2LKXX,XX#
XE
                                                                        00336400
75
      TEXT
                 0X375,2/XXX0
                                        axd51.5\SFXXX.XXa
                                                                     *X*00336500
447.5\XXX.
                  #X471,2/2LX4X.XX#
                                                                        00336600
      SPACE
                                                                        00336700
       TEXT
                  55
3
                                #XXX/2.7657#
                                                        #x325,2/2[KXX.X+00336800
           01397,2/114
X .
                                #X375,2/2LMXX.XX#
                                                                        00336900
74
      TFYT
                  #XXX/5,766X#
                                        exass's\SFxxx'AXe
                                                                     #X-00337000
                                                                        00337100
447.2/XXX
                   ##472,2/2LXXX.XX#
      SPACE
                                                                        00337200
3
      TEXT
                                                        #X323,2/2LXXX.X+00337300
                  5.3
                                RESAB'S\XAXR
¥ a
           #XZ48'5\XXXe
                                   #X373.2/?LXXX.XX#
                                                                        00337400
73
      PEYT
                 ex394,2/xxxe
                                                                     *X-00337500
                                        exess, ?/SLxxx.xxe
445.2/XXX
                  #X473,2/2LXXX.XX#
                                                                        00337600
      SPACE
                 3
                                                                        00337700
3
      TEXT
                  24
                                exxx/S.PPSIB
                                                        #¥324,2/2LXXX.X+00337900
                               ex374,2/2LXXX,XX#
X .
           4x344,5/4x44
                                                                       00337900
      TEXT
                 SXXXX, FFEXS
73
                                        exase'5\SFxxx'xxe
                                                                     #X+00339000
447.2/YXX#
                   #X$74,2/2LY4X.XX#
                                                                        00338100
      SPACE
                                                                        00338200
      TEXT
                                                                      -+00335300
1 5
-------
                                                                        00335400
                                                                        00338500
•
                                                                        00335600
      TEXT
                 MINTHEN
                                                                        00338700
```

```
TEXT
                  TOTALS
                                #X300.2/XXX#
                                                        #X325,2/2LXXX.XX+00339900
           #X350.2/XXX#
                                  0x375,2/2 KXX, XX0
                                                                         00339900
 79
       TEXT
                  SXROU-S/XXX8
                                        8X152'5\SFXXX'XX8
                                                                       *X*02339000
450.2/XXX
                   ### 15,2/2Lxxx xx#
                                                                         00339100
       EUPET
                                                                          00559200
       SPACE
                                                                          00339300
       TEXT
 13
                                SOUPHLY MATHTENANCE
                                                                          00339400
       SPACE
                                                                         00339500
 1 9
       TEXT
                                  INFORMATION
                                                                         00339600
       SPACE
                                                                         00339700
       TEXT
                  ATREMAPT
                               NUMBER OF MAINT ACTIONS
                                                              MATHTENANCHONSSARDO
E MAN HOURS
                    SPITINGE THIAM CHEERTS
                                                                         00339900
       TEXT
                  TAIL
                                                                         01140000
       TEXT
 .
                  NJASER
                               JASCHEDULED SCHEDULED
                                                              UNSCHEDULE+00340100
D
      SCHEDILED
                    JASCHEDULED SCHEDULES
                                                                         00500200
       SPACE
                                                                         00340300
5.
       TEXT
                              #4476,2/XXX#
                                                      #X501,2/XXX#
                                                                        .00330400
       4X551.2/2LXXX.XX4
                                8X259'5\5FKXX XX8
                                                                         00340500
77
       TEXT
                 AXPOI'S\IFKXX"XA
                                           #X576,2/1LXYX.X#
                                                                         00340600
       SPACE
                                                                         00340700
5
       TEXT
                              01477,2/XXX0
                                                      #X205.2/XXX#
                                                                        -00340R09
       #X555.5/5FXXX XX4
                               #X527.2/2LYXX.XXE
                                                                         00340900
77
       TEXT
                WX.XXX11/S.509X#
                                           #X577,2/1LKXX.X#
      32466
                                                                         00341000
                 3
                                                                         00341100
5
       TEXT
                 .
                              #4475,2/XXX#
                                                      #x503,2/xxxe
                                                                        *00341200
      8X553.2/2LXXX.XX8
                               ##528,2/2L##X, ###
                                                                         61341300
77
       TEXT
                8x603.5/1Fxxx'xe
                                           #X578,2/1LXXX.X#
                                                                         00341400
      SPACE
                                                                         C0341500
•
      TEXT
                 4
                              #4479,2/XXX#
                                                      #¥504,2/XXX#
                                                                        -00341600
      4x554,2/2Lxxx.xx4
                               44554'5\SFRAX,484
                                                                         00341700
77
      TEXT
                44604.5/1FXXX*X4
                                           #X579,2/1LXXX.X#
                                                                         60341830
      SPACE
                 3
                                                                        00341900
5
      TFET
                 3
                              SXXXVS CEBXS
                                                      #¥505,2/XXX#
                                                                        .00345000
      #X555,2/2LXXX XX#
                               ##530.5/SFXXX XX#
                                                                        001542100
77
      TEXT
               ##605.2/1LXXX.X#
                                           4x590,2/1Lxxx.xm
                                                                         00342200
      SPACE
5
      TEXT
                                                                        00342300
                              34451,2/XXX0
                                                      #X506,2/XXX#
                                                                        *00392400
      4x220.5\SFXXX.XX4
                              ##531,2/2LWXX.XX#
                                                                        00342500
77
      TEXT
              #X604.2/1LXXX.X#
                                           #X591,2/1LXXX.X#
                                                                        00342600
      SPACE
                 3
                                                                        00342700
9
      TEXT
                             #X455,5/XXX#
                                                      *x507,2/xxx*
                                                                       *00342800
      #X557,2/2LXXX.XX#
                               #X235'5\5FXXX XX#
                                                                        00342900
77
      TEXT
              #X607.2/1LXXX.X#
                                           #X592.2/1LXXX.X#
                                                                        00343000
      SPACE
                                                                        00343100
4
      TEXT
                 .
                             ##453,2/ XXX#
                                                     #4508,2/XXX#
                                                                       .00343200
      44229,5/SLXXX.XX4
                                44232'5\5F4XX'XX8
                                                                        00343300
                4x609.2/1LXXX.X0
77
      TEXT
                                           #X593,2/1LXXX.X#
                                                                        01343400
      SPACE
                .
                                                                        00343500
•
      TEXT
                             # 2454,2/XXX#
                                                     #¥509,2/XXX#
                                                                       +01343600
      #X55#.2/2LXXX.XX#
                               ##534,2/2LAXX,XX#
                                                                        00343700
77
      TEXT
               #X609.5/1FKXX'X#
                                           exese'SVIFAAX'An
      SPACE
                                                                        00343900
                                                                        00343900
5.
      TEXT
                10
                            #4495,2/XXX#
                                                     #¥$10.2/XXX#
                                                                       *00344000
```

```
8XX"XXX72/2'52X8 8XX XXX72/2'C95X8
                                                              00344100
                                                              00384200
                                     #4555,2/1LXXX.X#
     TEXT
              4x610.2/1LXxx.x4
77
                                                              01344300
     SPACE
                                              #¥511.2/XXX#
                                                              .00344400
     TEXT
                         #### 12 / XXX#
              11
4.
                         84226'S\SF4XX'AX8
     0x201.5\SFXXX.xxe
                                                               02344500
                                                               01344600
                                     0x556,2/1Lxxx.x#
              ##$11,2/1LXXX.X#
     TEXT
77
                                                               00344700
     SPACE
                                                              -01344500
                                              01512,2/XXX0
                       #4457,7/xxx+
#4537,2/26xxx
#447,2
                         04457.2/XXX0
              12
9.
     TEXT
     84295'5\5F444'44e
                                                               02344900
                                                               00345000
     TEXT #X612,2/1LXXX.X*
                                    #X597,2/1LXXX.X#
77
                                                               09345100
     SPACE
              3
                                                              .00345200
                                               #¥513,2/XXX#
                         #4458.2/XXX#
     TEXT
              13
5.
     8X202'5\SPXXX'XX8
                                                               00345300
                         # x 5 3 8 , 2 / 2 L 4 x x , x x #
     TEXT #X615,2/1LXXX.X#
                                    #X598,2/11 KXX.X#
                                                               00345400
77
                                                               01345500
     SPACE
              3
                                               #Y514.2/XXX#
                                                              *03345600
                         # K459,2/XXX#
     TEXT
               14
٩.
     8x298'5\SFAXX'XA8
                                                               00345700
                           #X539,2/2LXXX,XX#
     :Ext 0x610.2/1[xxx.x0 0x550,2/1[xxx.x0
                                                               00345400
77
                                                               00345900
     SPACE
               3
                                               #x515,2/XXX#
                                                              +00346000
     TEXT
            13
                         5
                                                               00345100
     0X292'5\SFXXX'XX0
                         #X540,2/2L4XX,XX#
                                                               00345200
                                    #X540,2/1[XXX.X#
             ex515,2/1LKXX.XE
     TEXT
77
                                                               00344300
     SPACE
     16 0x461'5\xxxa axaa axaa'5\xxxa
                                              8X216.2/XXX8
                                                              *00346401
                                                               00346500
                         44241'5\5FAXX'AX8
                                                               00345600
     TEXT #X615,2/1LKXX.X#
                                   0X501,2/1LKYX.X#
77
                                                               00346700
     SPACE.
                                               0x517,2/XXX0
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                         #445.2/XXX#
              17
     TEXT
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     0X567,2/2LXXX,XX0 0X562,2/2LXXX,XX0
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              8x617,2/1LKXX.X8
     TEYT
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     SPACE
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                                              8x518,2/XXX8
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                         01493.2/XXX#
     8X293'5\SFXXX'XX8
9
                          # 1543,2/2LKXX.XX#
                                                               00347300
                                                               01347400
     TEXT #X614.2/1LXXX.X8 #X593,2/1LXXX.X8
77
                                                               00347500
     SPACE
               3
                                               #¥$14,2/XXX#
                                                              *01347600
                        SYXX\S, SFB38
              1.0
     TEXT
5
     8X200'5\SFXXX'XX8
                           0X204'5\5FAXX'XX0
                                                               00547700
                                 0x594,2/1LXxx.x#
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     TEXT #X619,2/1LXXX.X#
77
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     SPACE
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                                               #X250.2/XXX#
                         #445,2/XXX#
     TEXT
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5
     #$70.2/2LXXX.XX#
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              0x624.2/1[4xx.x0 0x505,2/1[44x.x0
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     TEXT
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      SPACE
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                                  #X596,2/1LXXX.X#
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              4X951'S\IFKXX"X4
     TEXT
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      SPACE.
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                          01497,2/XXX0
     TEXT
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     44245'5\5\7444'44a
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                                                              *00309200
                                               0X253'5\XXX0
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                                                               00369400
                                   ##598,2/1LXXX.X#
             0x624.5/1Fxxx.xe
     TEXT
77
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SPACE
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     #¥524,2/XXX#
                                                      -00349600
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                                                       01349700
           77
     TEXT
                                                       00349800
     SPACE
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     TEXT
             --01350000
15
     00102500
     TEXT
          4341464
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.
                        #XXX2,005X#
     TEXT
             TOTALS
                                        0x525,2/XXX0
                                                       -01350300
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     00350490
77
     TEXT
           0x452,5/1/xxxx,x0
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     PUPET
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     SPACE
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     TEXT
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     SPACE
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     TEXT
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     SPACE
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     SPACE
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                      #4959'5\5FXX'XXR
                                          #X451,2/1_XXXX.+0:352400
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        00352500
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     TEXT
           8X701,2/2LXXX,XX8
                                      #X726,2/2LXXX.XX#
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                                                       00352600
     SPACE
                                                       09352700
5
     TEXT
                      ##627,2/2LXX.4X#
                                          #X652.2/1LXXXX.+003552800
       ##1402,2/1[#XX.X# ##677,2/2[#X.XX#
                                                       00957200
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           8x70>,2/2Lxxx,yx8
                                      0X727,2/2LXXX.XX0
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                                                       00343000
     STAGE
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                      04652'5\SFX4"4X4
                                           #X653,2/1[#XXX.+01343200
     TEXT
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        ex1403,2/1[xxx.xe ex678,2/2Lxx,xxe
X e
                                                       00353300
     TEXT UXTOR. 2/2LXXX.XXV
                                      0X728.2/2LXXX.XX0
                                                       00353400
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     SPACE
                                                       00353500
        ##140#,2/1C###.### ##679,2/2L##.###
     TEXT
                                           #X454,2/1LKXXX.+01353600
9
X .
                                                       00353700
     TEXT #4704.2/2LXXX.XX#
                                      ex720,2/2Lxxx.xxe
                                                       00343800
76
                                                       00343900
     SPACE
     TEXT
        #X455,2/1[XXXX.+00354000
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     TEXT
                                     #X730,2/2LXXX.XX#
           44705,2/2LXXX.XX8
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     SPACE
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     TEXT
                      84921'5\SFAX'4Xe
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         0X1000'5\1', XXX'X0 0X981'5\5'4X'XX0
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      TEXT
                ##704,2/2L###.###
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      SPACE
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      TEXT
                                                    #X657,2/16XXXX.+00354900
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           ##1407,2/1(###. ## ##652,2/2L##.###
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      TEXT
               0X/07.2/2LXXX.XX0
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      VEXT
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                ##709.7/2LXXX.XX#
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      SPACE
          01355501
      TEXT
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      TEXT
                extos'5/5Fxxx xxe
                                               #X734,2/2LXXX.XX#
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      SPACE
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      TEXT
                                                    #X660,2/1LXXXX. *01356000
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                           #4635.2/2Lxx.xxe
           ##1410,5/1(###. ## ##685.2/2L##. ###
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      TEXT
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                ##717,2/2LXXX.XX#
                                               #X735,2/2LXXX.XX#
                                                                   01355200
      SPACE
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           5
      TENT
                                                    #XAA1,2/1[XXXX. +07355400
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      TEXT
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                0X711,2/2LXXX.XX0
                                               4X736,2/2LXXY.XX4
                                                                   01355600
      SPACE
                5
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           12 04637,2/2LXX,xX0
041012,2/1/4XX,XX
9
      TEXT
                                                    00862,2/1 XXXX. +01395900
                                #X687,2/2LXX.XX#
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      TEXT
                ##712.2/2LXXX.XX#
                                               #X737,2/2LXXX, XX#
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      SPACE
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           #x663,2/1 xxxx. +0 1357200
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      TEXT
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                #X713,2/2LXXX.XX#
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           0x1010'8\1/, xxx'xa 0x020'5\5/xx'xxa 12 0x020'5\5/xx'xxa
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      TEXT
                                                    #x644,2/16xxxx.+00357600
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76
      TEXT
                ##714,2/2LXXX.XX#
                                               #X730,2/2LXXX,XX#
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      SPACE.
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      TEXT
                                                    #X665,2/1LXXXX. +00559000
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      TEXT
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                ##715,2/2LXXX.XX#
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      SPACE
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           #X666,2/1 XXXX. 001359400
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      TEXT
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      TEXT
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                #X716.2/2LXXX, XX#
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      SPACE
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      TEXT
           17 04642,2/2Lvv,4x0 17642,2/2Lvv,4x0
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                                                    #¥667,2/16xxxx.+01355800
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      TEXT
                #4717.2/2LXXX.XX#
                                              #X74>,2/2LXXY. YX#
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      SCAPE
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      TEXT
                                                    #x668,2/1 xxxx. +01357700
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      TEXT
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                #¥719,2/2LXXX.XX#
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      SPACE
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                           8x684.5/5FXX.XX8
                                                    #X669,2/16XXXX. +01399401
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      TEXT
           ##1419,2/1L4XX.X#
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                               #X644'5\5FKX'XXe
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                TEXT
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                SPACE
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                TEXT
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                SPACE
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                          TEXT
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                TEXT
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  76.
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                SPACE
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                         #X672,2/1LKXXX. +00360800
                TEXT
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                TEXT
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                SPACE
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                SPACE
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                TEXT
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                TEXT
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               TEXT
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               TEXT
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               TEXT
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               TEXT
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                                       ##725.2/2LXX. #X#
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               EJECT
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               SPACE
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               TEXT
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  33
                                                                                                                                                         00362700
               SPACE
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               TEXT
                                       TOTAL PLYING HOURS DURING THE MONTH
                                                                                                                              #X183,2/1LX+01362900
  1 $
WY.YM
                                                                                                                                                         00363000
               SPACE
                                                                                                                                                         00363100
                                       PLYING HOURS-COMPLETED MISSIONS
               TEXT
  19
                                                                                                                               #X275,2/1LX+00363200
KK.KE
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                SPACE
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               TEXT
                                       PLYING HOURS-ARORTED MISSIONS
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  15
 XXX X.
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               SPACE
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  19
                                       PLATAS HO INSTEST HOPS
               TEXT
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               SPACE
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                                       THE SERVICE PLATION PERPORMED WALTS, SYXXX ON AIRCRAFACOSAGIOO
               TEXT
T REPAIRS THIS MONTH.
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               SPACE
               TEXT
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               SPACE
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  TEST TEXT
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LIST OF SYMBOLS AND ABBREVIATIONS

A/C Aircraft

ATC Advanced Technology Component

CONUS Continental United States

CPU Central Processing Unit

EMT Elapsed Maintenance Time

F/H Flight Hour

FAIL RATE Failure Rate

FIRM Flight Inspection Requirements Minimum

GPSS General Purpose System Simulation

GSE Ground Support Equipment

HLH Heavy Lift Helicopter

I.O.M. Index of Merit

MA Maintenance Action

MAINT. CONC. Maintenance Concept

MALF/FH Malfunctions per Flight Hour

MEA Maintenance Engineering Analysis

MMH Maintenance Man-hour

MMH/FH Maintenance Man-hour per Flight Hour

MTBMA Mean Time Between Maintenance Actions

MTTR Mean Time to Repair

NORM Not Operationally Ready - Maintenance

NORS Not Operationally Ready - Supply

NRTS Not Repairable This Station

O&M Operations and Maintenance

PMD Preventive Maintenance Daily

PMI Preventive Maintenance Intermediate

PMP Preventive Maintenance Periodic

PPI Phased Periodic Inspection

Q Queue

R&M Reliability and Maintainability

S Standard deviation of a normal distribution

TBO Time Between Overhaul

TOE Table of Organization and Equipment

UTIL Utilization

WUC Work Unit Code

X Mean of a normal distribution

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